seamless

System for Environmental and Agricultural Modelling; Linking European Science and Society

Protocols for spatial allocation of farm types

Elbersen B., Kempen, M., van Diepen K., Andersen E., Hazeu G., Verhoog D.

Partners involved: ALTERRA, UBONN, FLD, LEI

with contribution of Renate Koeble (JRC-Climate Change Unit)

Report no.: 19
November 2006
Ref: PD4.7.1
ISBN no.: 90-8585-046-0

ALTERRA WAGENINGEN UR

universitätbonn

Logo's main partners involved in this publication

Sixth Framework Programme

SEAMLESS integrated project aims at developing an integrated framework that allows ex-ante assessment of agricultural and environmental policies and technological innovations. The framework will have multi-scale capabilities ranging from field and farm to the EU25 and globe; it will be generic, modular and open and using state-of-the art software. The project is carried out by a consortium of 30 partners, led by Wageningen University (NL).

Email: SEAMLESS.office@wur.nl
Internet: www.SEAMLESS-ip.org

Authors of this report and contact details

Name:
Berien Elbersen Partner acronym: Alterra
Address: Droevendaalse Steeg 3, Pb 47, 6700 AA, Wageningen
E-mail: Berien.Elbersen@wur.nl

Markus Kempen Partner acronym: UBONN
E-mail: Markus.Kempen@ilr.uni-bonn.de

Disclaimer 1:

"This publication has been funded under the SEAMLESS integrated project, EU 6th Framework Programme for Research, Technological Development and Demonstration, Priority 1.1.6.3. Global Change and Ecosystems (European Commission, DG Research, contract no. 010036-2). Its content does not represent the official position of the European Commission and is entirely under the responsibility of the authors."

Disclaimer 2:

Within the SEAMLESS project many reports are published. Some of these reports are intended for public use, others are confidential and intended for use within the SEAMLESS consortium only. As a consequence references in the public reports may refer to internal project deliverables that cannot be made public outside the consortium.

When citing this SEAMLESS report, please do so as:

Elbersen B., Kempen, M., van Diepen K., Andersen E., Hazeu G., Verhoog D. 2006. Protocols for spatial allocation of farm types, SEAMLESS Report No.19, SEAMLESS integrated project, EU 6th Framework Programme, contract no. 010036-2, www.SEAMLESS-IP.org, 107 pp, ISBN no. 90-8585-046-0.

Table of contents

General information

Task(s) and Activity code(s):	4.7
Input from (Task and Activity codes):	4.3 and 4.4
Output to (Task and Activity codes):	3.2, 3.3, 3.6 and 3.7
Related milestones:	4.7.2

Executive summary

In this PD the approach to spatially allocating farm typology information to a specific environmental context is presented. At this moment the farm type information is only available at the administrative level of the FADN regions (HARM 1 regions). The spatial allocation approach adds a spatial dimension to all farm types making it possible to aggregate the types both to natural and to administrative regions. The spatially allocated farm types therefore facilitate the model linking, as they relate different scales to each other, just as different dimensions/domains (administrative, environmental, social). This spatial flexibility provides input data to the bio-economic/physical models in SEAMLESS (FSSIM and APES) in which a link has already been established between the socio-economic and farm management characteristics of farms and their environmental endowment (climat and soil attributes). Such input data also enable the linking of bio-economic/physical models (FSSIM), in which the farm in its bio-physical environment is central, to the market model (CAPRI), in which the market share of a specific farm type in a region is a crucial model input and output.

The spatial allocation of FADN farm information is a complicated process which involves several steps to allocate the FADN farm information and present the allocation results in a form that is in line with the disclosure rules for FADN data and that is useful as the basic input for the environmental and economic modelling in SEAMLESS.

The result of the allocation approach is a methodology that enables us to add a locational dimension to every individual farm contained in the FADN data base. This locational dimension is a reference to either a Homogenous Spatial Mapping Unit (HSMU) or a Farm Mapping Unit (FMU) (a cluster of HSMUs). Since HSMUs can be clustered to administrative or bio-physical entities the farms can also be grouped to these different spatial entities. For the first presentation of the allocation results we have chosen to group the farms to Agri-environmental zones (AEnZ).

First it is described how the land use or cropping zones database was developed by the University of Bonn and the Joint Research Centre (JRC, Climate Change Unit, Ispra) within the Dynaspat project. In the CAPRI-Dynaspat project a statistical approach for spatial allocation of crop production in the EU was developed. The result of this allocation, a detailed land use map (until now only available for EU15) is the basic input for the allocation of the farm type information in SEAMLESS. The

Dynaspat approach disaggregates the FSS crop information from the Nuts 1/2 regions to the much smaller Homogeneous Spatial Mapping Units (HSMUs) by developing allocation algorithms in a statistical procedure. This procedure combines a logit model with a Bayesian highest posterior density estimator. The HSMUs are defined by homogeneous production conditions rather than administrative boundaries. For the spatial allocation of the FADN farm information the land use information and other attributes assigned to the HSMUs in the Dynaspat project are taken as the main input basis. The methodology for the farm allocation is very similar to that used for producing the land use allocation in Dynaspat. The main difference is however, that instead of using the HSMUs as the basic spatial entities to which farms are allocated a clustering of HSMUs, so-called Farm Mapping Units, are used. This clustering is necessary to reduce the complexity of the allocation procedure. The final allocated results are still linked back to the original HSMUs of which the FMUs composed. This linking back is easy since the link to the HSMUs the FMU is a cluster of is maintained. For the presentation of the results farm allocation results will therefore first be linked to HSMUs and than aggregated to farm types in Agri-environmental zones. For the allocation of FADN farm information first the aggregation of HSMUs into FMUs is done. Secondly, a fixed distribution of FADN farms over dominant altitude and LFA and non-LFA zones is created. Finally the optimale match between farm cropping patterns and potential yield levels and land use patterns in (a regional cluster of) FMUs is identified by applying a *Bayesian Highest Poterior Density* method.

The results of both disaggregation approaches for land use in the Dynaspat project and for FADN farm information in SEAMLESS are delivering good results in terms of validation. However, it is clear that the usefulness of the allocated farm information as input for modelling in FSSIM (and APES) still needs to be tested.

This PD only presents farm results for the four prototype regions, but this work will be further extended to the rest of the EU25 (see next section). The disaggregation of the land use in Dynaspat and the disaggregation of the farm information are closely linked. Both approaches are planned to be further improved and extended to the New Member States for Dynaspat land use and to the rest of the EU15 and the new Member States for the farm allocation. The Dynaspat land use has been produced already for EU15, but can be further improved. Any improvement in Dynaspat land use will also lead to an improvement of the farm allocation results as it is used as input for the farm allocation approach. The presented results in this PD are therefore not the final ones as further validation of both Dynaspat land use and farm allocation results will be used to further improve the allocation procedure of both land use and farm allocation in the EU15 including the four prototype regions.

Specific part

1 Introduction

The main objective of SEAMLESS is to develop an integrated framework (SEAMLESS-IF) to support ex-ante analysis of policies that enables analysis at the full range of scales. It therefore requires an integration of both spatial and statistical data and model inputs and outputs. In order to make this spatial integration of different data and modelling inputs and outputs possible WP4 develops procedures to combine data at different spatial levels. In this PD the approach to spatially allocating farm typology information to a specific environmental context is presented. The idea of developing a spatially explicit farm typology was presented at the SEAMLESS cross work package meeting in June 2005 and the WP 3 meeting in August 2005 both held in Montpellier. All partners present welcomed the idea of developing a hierarchical typology of farms and adding a spatial dimension to these farms by building on the Dynaspat land use allocation approach. At this moment the farm type information is only available at the administrative level of the FADN regions (HARM 1 regions). The spatial allocation approach adds a spatial dimension to all farm types making it possible to aggregate the types both to natural and administrative regions. The spatially allocated farm types therefore facilitate the model linking, as they relate different scales to each other, just as different dimensions/domains (administrative, environmental, social). This spatial flexibility provides input data to the bio-economic/physical models in SEAMLESS (FSSIM and APES) in which a link has already been established between the socio-economic and farm management characteristics of farms and their environmental endowment (climat and soil attributes). Such input data also enable the linking of bio-economic/physical models (FSSIM), in which the farm in its bio-physical environment is central, to the market model (CAPRI), in which the market share of a specific farm type in a region is a crucial model input and output.

A multi-dimensional farm typology based on individual farm data from the Farm Accountancy Data Network (FADN) has been developed in SEAMLESS (see PD4.4.2). In this report we are presenting the approach to make this farm typology spatially explicit. The methodology of spatial allocation of FADN farm information is first discussed followed by a presentation of the results for the 4 prototype regions: Flevoland, Brandenburg, Midi-Pyrenées and Andalucía. The report finishes with conclusions and a description of further work.

1.1 Need for a spatially explicit farm typology

According to the Description of Work (DOW) the SEAMLESS project aims at developing an integrated and operational framework (SEAMLESS-IF) to support ex-ante analysis of policies at the full range of scales. This analysis should lead to a more multifunctional agriculture contributing towards sustainable rural development and rural viability and should therefore involve environmental, economic and social assessments. Because of the regional variation in climate, natural resources (soils, vegetation etc) and social structures and the increasing move towards de-centralisation of policy implementation, there is an increasing need to appraise the multifunctional agriculture at a range of scales from global, European to farm and even field level. For this integrated analysis it is therefore necessary to do assessments of complex processes for which several model approaches need to be integrated and applied to a range of scales. This integrated and multi-scale approach is an ambitious task and it is our basic assumption that this requires the use of a common farm typology which is spatially explicit as this enables:

- To differentiate farms according to responses to policy, markets and environment
- To relate market response behaviour to environmental performance of farms
- To up-scale market responses and environmental performances of farms to farm type groups

One of the main challenges for providing the data needed for integrated assessments in SEAMLESS is the linkage of socio-economic data to environmental data. Statistical data on the agricultural sector are generally given per administrative region, which does not allow assessments to take the bio-physically heterogeneity of regions into account. In SEAMLESS the developed farm typology (PD 4.4.2) will therefore be linked to bio-physical characteristics by allocating the farm types to sub-regional areas, with more homogenous bio-physical endowments. This requires a spatial allocation of the farm type information (available at the FADN region level) to smaller (natural) entities such as climate or altitude zones, land use zones or zones with similar soil characteristics. The result of the approach is a methodology that enables us to add a locational dimension to every individual farm contained in the FADN data base. This locational dimension is a reference to either a Homogenous Spatial Mapping Unit (HSMU) or a Farm Mapping Unit (FMU) (a cluster of HSMUs). Since HSMUs can be clustered to any administrative or bio-physical entity the farms can also be grouped to these different spatial entities. For the first presentation of the allocation results we have chosen to group the farms to Agri-environmental zones (AEnZ).

The AEnZ was created as part of SEAMLESS project (See PD4.3.3) and exists of classes that are relatively homogeneous from an agronomic perspective. The AEnZ is especially developed in SEAMLESS as an environmental framework which provides a basis for up-scaling and or clustering of both model input information (e.g. farm

attribute information) and model-output information. The AEnZ is a hierarchical classifications based on 3 layers:

1. 13 environmental zones (EnZ) which is the result of a principal component analysis (PCA) of 20 most relevant and available environmental variables (grouped under climate, geomorphology, oceanicity and northing)
2. 6 topsoil organic carbon classes (OCTOP), and
3. 3 agri-mask classes (AGRI-MASK) regarding constraints to agriculture.

The 13 EnZ come from the Environmental Stratification (Metzger et al., 2005) and were produced in a principal component analysis (PCA) of 20 most relevant and available environmental variables (grouped under climate, geomorphology, oceanicity and northing) combined by means of an ISODATA clustering. The resulting 84 strata of the Environmental Stratification (EnS) were then aggregated again using a statistical method taking the most dominant factors per strata into account, into 13 environmental zones (EnZ). For the inclusion of soil factors in the agri-environmental zonation (AEnZ) several soil factors within different data sources were selected and tested using a PCA analysis. Since the results showed that more than 90% of the soil variation in Europe was explained by the topsoil organic carbon (Jones et al., 2005) this factor was taken as the only soil attribute in the creation of the agri-environmental zonation (AenZ). The topsoil organic carbon content (%) (OCTOP), which is a continuous variable, is grouped into six classes and gives a fair picture of the relative variation in agronomic capacity of soils within Europe.

For the inclusion of altitude factors and the delimitation of areas where agriculture is not possible or only possible under strong bio-physical constraints, an additional mask is developed: the ‘agri-mask’. For the definition of this agri-mask altitude, slope, rooting depth, alkalinity and salinity information is combined. The agrimask consists of the following three classes:

- areas having no or relatively small constraints to agriculture
- areas where arable agriculture is not possible (mountainous areas above a certain altitude, depending on the latitude, and/or very steep slopes (>16%) and/or limited rooting depth (<20cm)),
- strongly naturally handicapped areas where agriculture is heavily constrained and restricted to extensive farming (areas with steep slopes (>8%) and/or high alkalinity (>15% exchangeable sodium) and/or salinity (>15dS/m),

Note that the agri-masks are environmental classes for potential land use, and do not describe actual land use. The suitable class 0 includes both agricultural areas and non-agricultural areas, such as forested areas. For further information on the AEnZ see PD4.3.3.

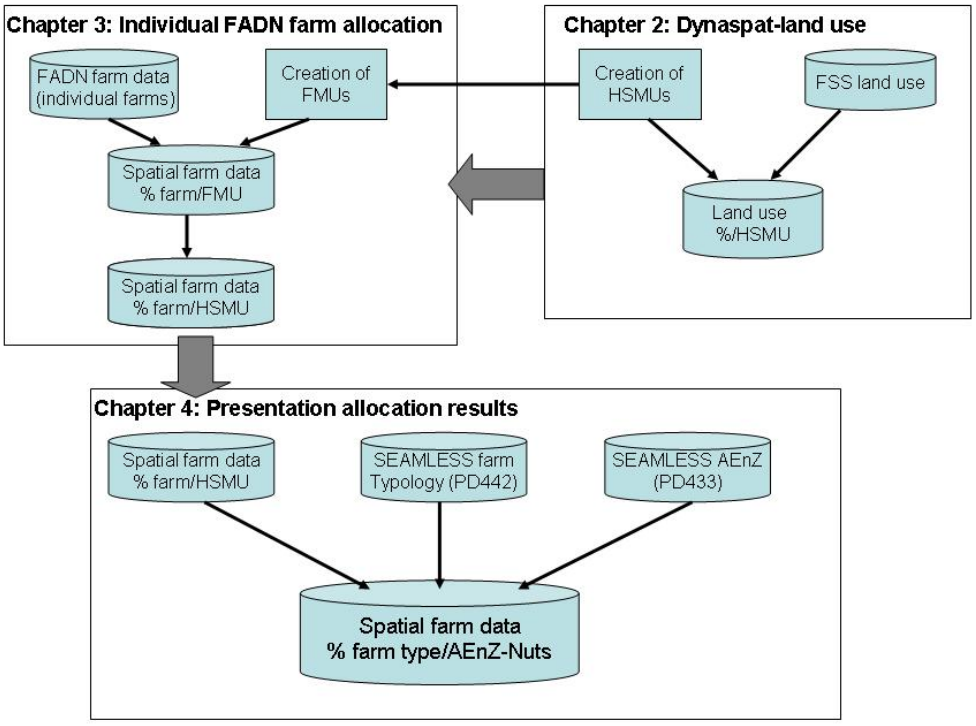
Finally it should also be mentioned that for the presentation of the allocated farms there is one bottleneck to overcome which is related to disclosure rules applied to the FADN information. The presentation of the farm information for other spatial entities

is only allowed when disclosure rules of the FADN data are not violated. These require that farm information can only be disclosed if it is represented by at least 15 sample farms. This complicates the presentation of the disaggregated farm information. How to handle this problem will also be discussed in this report.

1.2 General approach and structure of this report

The spatial allocation of FADN SEAMLESS farm information is a complicated process which involves several steps which will be discussed systematically in this report. In Figure 1.1 a schematic overview is given from the different steps and inputs required to allocate the FADN farm information and present the allocation results in a form that is in line with the disclosure rules for FADN data and that is useful as the basic input for the environmental and economic modelling in SEAMLESS.

Figure 1.1 Workflow and inputs required to spatially allocate FADN farm information



In Figure 1.1 it becomes clear that first in Chapter 2 it is described how the land use or cropping zones database was developed by the University of Bonn and the Joint Research Centre (JRC, Climate Change Unit, Ispra) within the Dynaspat project. This database is an important basis for the spatial allocation of the farm information described in Chapter 3. Within the Dynaspat project the Homogeneous Spatial Mapping Units have been created and land use information has been assigned to these

units in a statistical allocation procedure. Chapter 3 describes the methodology developed for the spatial allocation of the FADN farm information taking the land use information and other attributes assigned to the HSMUs in the Dynaspat project as a basis. The result of the allocation is a methodology that enables us to add a locational dimension to every individual farm contained in the FADN data base. This locational dimension will exist of a reference to a Farm Mapping Unit, which is a cluster of Homogenous Spatial Mapping Units (HSMUs), in which the farm is most likely to be located.

In chapter 4 the allocation results are presented including a description of the aggregations applied in order to make the allocated farm information disclosable and useful as input for the SEAMLESS modelling. The results are only presented for the four SEAMLESS prototype regions.

In Chapter 5 conclusions are given on the quality of the allocation approach and a proposal for the application of the allocation approach to the rest of the EU is discussed.

2 The Dynaspat land use map: input data, methodology and results

In the CAPRI-Dynaspat project a statistical approach for spatial allocation of crop production in the EU was developed. The result of this allocation, a detailed land use map (until now only available for EU15) is the basic input for the allocation of the farm type information in SEAMLESS. The Dynaspat approach disaggregates the FSS crop information from the Nuts 1/2 regions to the much smaller Homogeneous Spatial Mapping Units (HSMUs) by developing allocation algorithms in a statistical procedure. This procedure combines a logit model with a Bayesian highest posterior density estimator. The HSMUs are defined by homogeneous production conditions rather than administrative boundaries, though the HSMUs ar embedded in Nuts2-3 regions by sharing borders. In the following first a description is given of the main data sources used for the production of the land use map. This is then followed by a description of the production of the Homogeneous Spatial Mapping Units (HSMUs). In Section 2.3 the spatial allocation procedure is given followed by a validation of the intermediate allocation results. In Section 2.4 the final allocation results are then presented which form the basis for the allocation of farm information. A more detailed description of the approach can be found in Kempen et al., 2006ab.

2.1 Input data for the production of the Dynaspat land use map

The input data used for the allocation of land use consists of Farm Structural Survey (FSS) data on crop shares per NUTS 2/3 region which needs to be distributed to HSMUs. The allocation of this information is done with a whole range of other data sources which help to predict the presence of certain crops in an HSMU. For this prediction, both attribute information at the level of an HSMU on climate, soil and topography is used and LUCAS point information on the occurance of crops (see also Table 2.3).

The attribute information on soils, climate and topography has been linked to HSMUs as is further described in the next section. The selection of the soil, climate and topographic factors influencing presence of crops, builds on the suitability rules already developed in the MARS project (Boogaard et al. (2002) and Micale and Genovese (eds.) (2004)). Within MARS yield potentials for specific crops have been calculated using expert information and linking this to soil and climate data.

The soil map of Europe shows *soil mapping units* (SMU) which are soil landscapes formed by a characteristic pattern of distinct soil units. These soil units are the *soil typological units* (STU) to which the parameters of interest for the land use allocation are connected. These parameters include e.g. the genetic soil unit (soil name in the soil map legend), texture, slope, soil phase, parent material etc. A SMU may be composed of several STUs, the number of STUs in a SMU ranges from 1 to 6. The

exact location of a STU within a SMU is not known, there is only an indication of the percentage distribution of STUs within a SMU. The same STU may occur in several SMUs, in different combinations with other STUs. To determine the specific soil attributes per SMU percentage estimates first need to be made of the agricultural land within a SMU and than of the dominant soil attributes present. To simplify the information and make it useful in the allocation procedure the attribute information of the dominant STU is assigned to the entire SMU, or, if no dominant STU can be identified (no >50% coverage), a percentage value is used.

Table 2.1 Distribution data and additional data sources used for the allocation of land use

Distribution data	**Indicators used**	**Source**
I. Land use information at NUTS 1/2 level	30 different crops	Farm Structural Survey (FSS), EUROSTAT 2000

Attribute information to predict crop shares in a HSMU	**Indicators used**	**Source**
I. Soil attributes	Soil types: Set of soil codes (World Reference Base)	*Soil data:* *European Soil Database* V2.0 (European Commission, 2004). Set of soil codes: FAO, 1998 and Driessen, et al. 2001.
	Drainage/water management	
	Presence of stones	
II. Relief	Slope	Digital Elevation Model (CCM DEM, 250 meters). EC, JRC-IES, 2004).
	Elevation	
III. Climate	Annual rainfall	JRC-MARS meteodata. Interpolated metereological data, contained in the JRC-MARS-database (Boogaard et al. (2002) and Micale and Genovese (eds.) (2004)): all climate information in this database is provided for every 0.5 long-lat grid based on a 20 year average.
	Cumulative temperature sum	
IV. Land Cover information	11 agricultural classes were selected from the 44 land cover classes	CORINE land Cover (CLC) 2000, ETC-TE, 2000)
Point information	**Indicators used**	**Source**
V. Land Use information from the area frame survey LUCAS	Observed crop information in about 40,000 sampling points in EU15 on 38 crop classes	European Commission (2003), Lucas Survey

One of the main soil indicators used in the allocation is the soil type. The soil types are defined in the World Reference Base (WRB) as part of the Soil Code. Each STU in the *European Soil Database* has been given a Soil Code defined and characterised in the WRB. In the relevant SMUs a total of 95 WRB Soil Codes are present. In order to use this soil type information in the allocation procedure, the number of WRB soil

codes had to be reduced and clustered according to their suitability for certain crops. A clustering was therefore made in two steps. In the first step the soil grouping of Driessen et al (2001) was used who rearranged the 30 WRB soil groups into 10 so-called Sets, based on the dominant soil forming factors that determined the soil conditions. Since these resulting Sets were still very heterogeneous in terms of suitability for crops and yielding capacities they had to be subdivided again in a second step. In this second step new Sets werer created which were more homogeneous in terms of agronomic capacity notably rooting depth, organic matter, texture, drainage class, Available WaterHolding Capacity, presence of stones and slope. This further subdivision of the Driessen set was based on expert judgement. In order to maintain the logic of the distinction of the soil units on the soil map, we preferred that the Sets were defined by the highest hierarchical level in the WRB, *the Soil Reference Group* and then by the second level of the *Soil Units.*

The 2-step approach resulted in the following 15 soil Sets and one non-soil Set:

Set 0 holds all non-soils (Towns, water, glaciers, rocks, marshes)

Set 1 holds all organic soils (Histosols)

Set 2 holds all soils which have in common a high content of sand (Arenosol, Podzol, Arenic Umbrisol, Plaggic Anthrosol)

Set 3 holds all Regosols, characterized as soils from uplands developed in unconsolidated materials, in itself a very heterogeneous cluster

Set 4 holds all shallow soils typically occurring in sloping rocky landscapes (Leptosols)

Set 5 holds most Cambisols, which have as common feature that they are relatively young soils, Cambisols are not related to any specific landscape position.

Set 6 holds the soils of the forest-steppe transition zone, with dark topsoils Chernozems and Phaeozems (climate feature is the equilibrium in the annual moisture balance)

Set 7 holds the soils of the drier steppe, with dark topsoils, Kastanozems. (the climate feature is a water deficit in the annual moisture balance)

Set 8 holds the Albeluvisols: medium textured soils of the humid temperate region where leaching is the dominant process. Albeluvisols have soil properties in between Luvisols and Planosols

Set 9 holds the Luviosols: Medium textured soils of the humid temperate region where leaching of clay is a prominent process. Luvisols have sandy topsoil and clay enriched subsoil.

Set 10 holds the Planosols, medium textured soils of the humid temperate region where leaching is the dominant process. Planosols have white sandy topsoil and dense clayey subsoil.

Set 11 holds heavy clay soils that swell when wet and shrink when dry. This Set 11 contains the Vertisols and the vertic subgroups of Cambisols and Luvisols.

Set 12 holds all soils associated with flooding or wetness, usually located in lowlying flat terrain Fluvisols and Gleysols.

Set 13. holds all Andosols (soils developed in volcanic deposits)

Set 14 hold all soils with characteristics of subtropical weathering, leading to deep red soils of relatively low fertility (Acrisols and Alisols)

Set 15 holds soils of arid and semi arid regions characterized by a shortage of water ands accumulation of salts, lime or gypsum in the soil or at the surface (Solonchaks, Solontchak, Gypsisol and Calcisol).

The Land Cover information used comes from the CLC 2000 (European Topic Centre on Terrestrial Environment, 2000) and divides the land cover into 44 classes. It is produced by combining information from visual interpretation of satellite images and ancillary data (e.g. aerial photographs and topographic maps). For the allocation of the crop information to the HSMUs only the 11 agricultural Corine land cover classes are used (see Table 2.2). Since a 25 hectare area is the minimal mapping unit of CLC and several CLC classes are composite land cover classes, the CLC information can only be used as an additional indicator for predicting crop shares. CLC only gives information on the dominant land use within the minimal mapping unit (250 meters^2) and if the land use is very diverse within the mapping unit, CLC assigns heterogeneous land cover classes to the square (e.g. 'land principally occupied by agriculture with significant areas of natural vegetation'). The CLC therefore only provides additional information for specifying the allocation algorithms as every specific Corine land cover class can only be associated with a limited number of agricultural crops.

Table 2.2 The 11 Agricultural Corine Land Cover Classes used for the allocation of crops

Level 1	Level 2	Level 3
2. Agricultural areas	2.1 Arable land	2.1.1 non-irrigated arable land
		2.1.2 Permanently irrigated land
		2.1.3 rice fields
	2.2 permanent crops	2.2.1 Vineyards
		2.2.2 fruit trees and berry plantation
		2.2.3 olive groves
	2.3 Pastures	2.3.1 Pastures
	2.4 heterogeneous agricultural areas	2.4.1 annual cops associated with permanent crops
		2.4.2 complex cultivation patterns
		2.4.3 land principally occupied by agriculture with significant natural vegetation
		2.4.4 agro-forestry areas

The final and most important source of information on which the allocation is based comes from the LUCAS survey point information (EUROSTAT, 2000). The LUCAS survey was done in 2000 and 2003 in the EU15. In 2006 the sampling design will be modified and the survey is extended to most of the new Member States (MS). When this information becomes available is not clear yet. However, for this first allocation the LUCAS 2000 and 2003 data were used. These LUCAS survey data only cover the territory of the EU15. It is based on a 2-stage sampling method:

- Within a regular grid sample units, so-called Primary Sampling Units (PSU), with a size of 18*18 km are defined. For these whole grids information on land cover/land use is collected using up-to-date aerial photographs. This results in a selection of around 10,000 PSUs in the EU15
- Within every PSU 10 points, so-called Secondary Sample Units (SSU), are selected regularly distributed (in a rectangular of 1500*600 meters side length). For these points real field-observation-based crop information is collected on 38 agricultural crop classes.

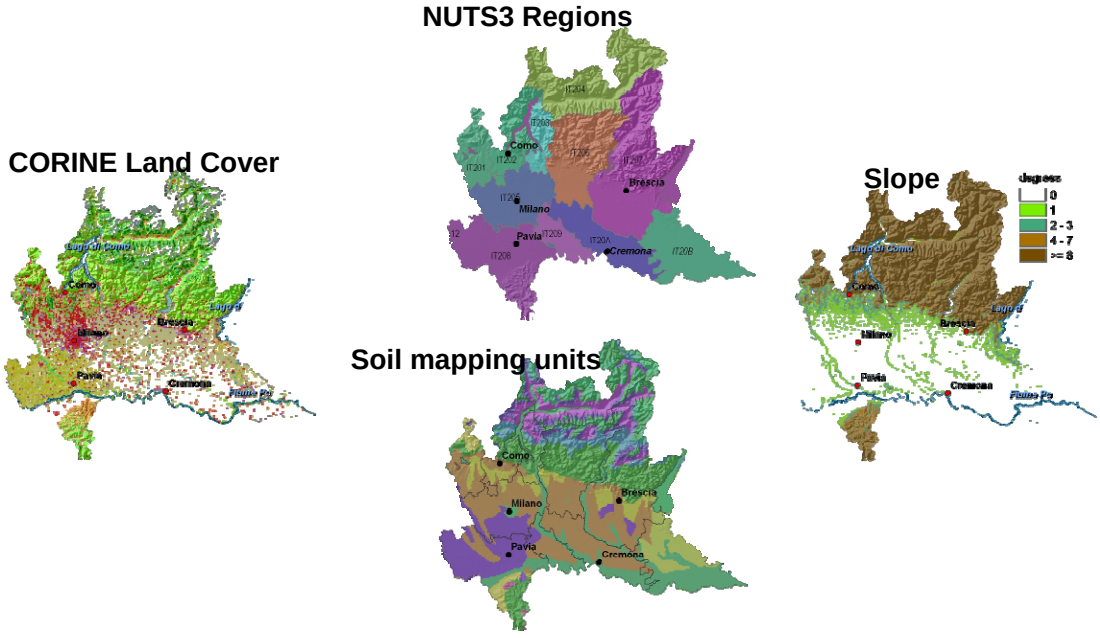
It is the point information in the SSUs that is the main basis for predicting crop shares in the HSMUs. However, since both the LUCAS point information and the CLC information are used as input for predicting crop shares, the influence of measurement errors which most strongly occur in CLC2000 need to be diminished. This is done by making a sub-selection of the SSUs and taking only those that were located more than 100 meters away from the borders of the CORINE classes (Gallego, 2002). This results in a selection of approximately 40,000 LUCAS sample points regularly spread over the whole EU 15 which are the basis for the allocation procedure. For the development of the allocation algorithms it is assumed that the chance for a similar crop pattern to occur in a place outside a LUCAS point depends on the distance to that LUCAS point, the larger the distance the lower the chance, but also on the level of similarity in soil, climate, relief and land cover characteristics.

The 38 agricultural classes found in LUCAS (36 crop land, 2 permanent grassland classes) were re-grouped according to the crops found in FSS. All other classes (artificial areas, woodland, etc.) are aggregated in a rest group.

2.2 Creation of the Homogeneous Spatial Mapping Units (HSMUs)

Since most administrative regions (e.g. NUTS regions) are very diverse from an agro-physical perspective there is a need to split these regions up in small entities, so-called HSMUs with homogeneous bio-physical environment in which similar crop patterns can be assumed. HSMUs are an intersection of land cover (Corine LC 2000), relief (slope in 5 classes), Soil Mapping Units (so-called soil landscapes from the *European soil map*) and the Nuts 2/3 boundaries (depending on the size of the NUTS regions) (see Figure 2.1). Each HSMU has identical values for land cover class, slope class and Soil SET, other parameters (such as annual rainfall) may differ inside the HSMU. These HSMUs can be multiple polygons (open) which implies that one HSMU can be spread over different locations within a NUTS area. Attributes belonging to every HSMU are calculated (characteristics in terms of soil, climate, land cover, yielding capacity). These attributes are used to allocate the land uses to the HSMUs, but also the farms (see Chapter 3).

Figure 2.1 An HSMU is an intersection of land cover, slope, soil mapping units and Nuts boundaries



For the definition of the allocation algorithms for allocating the FSS land use information to the HSMUs, the LUCAS point information on agricultural land use, the Corine land cover information (CLC2000), slope and soil characteristics are used as the main reference sources on which the prediction for the presence of a specific crop can be based.

2.3 Procedure for the allocation of crops

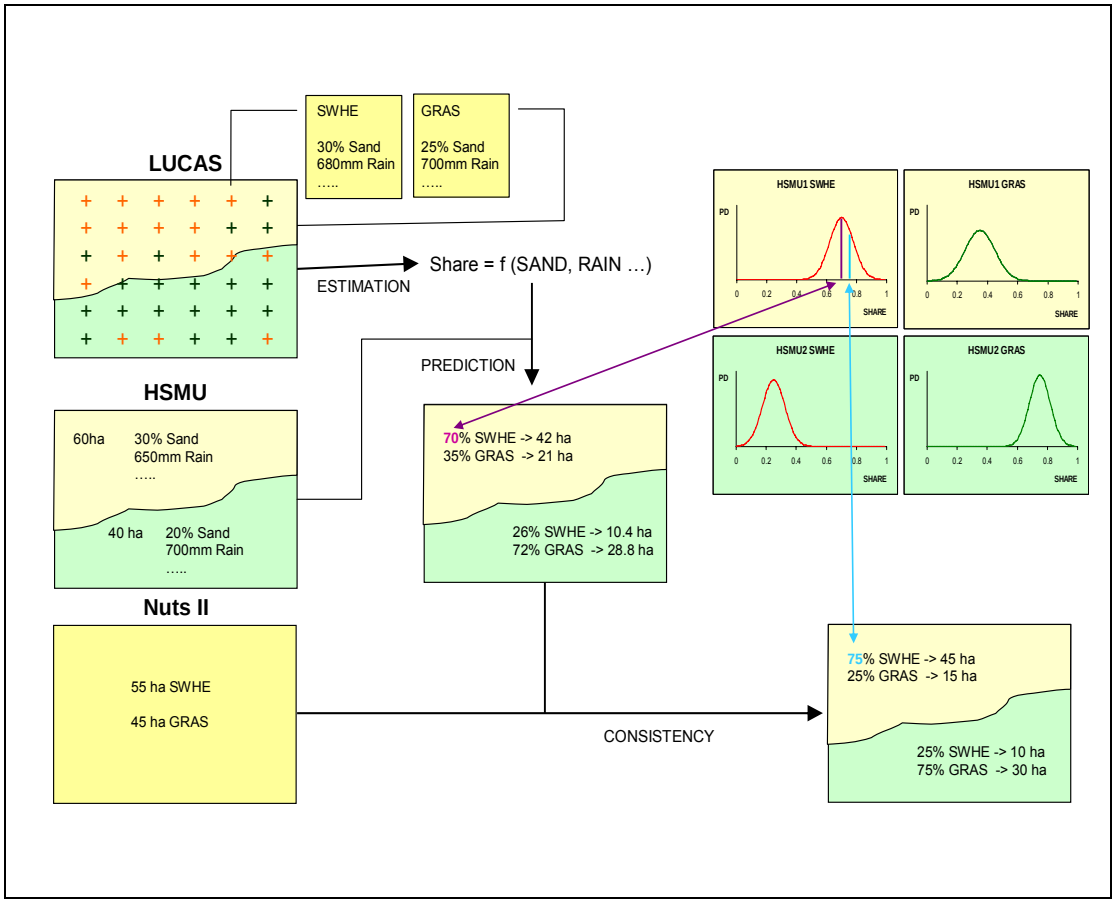
A two step approach is then followed to predict the crop shares in every HSMU. These two steps were applied a couple of times in an iterative process in which the outcome of the following validation provides new ideas for improvements of the previous steps.

Step 1: The first step regresses cropping decisions in each HSMU on bio-physical factors (soil characteristics, climate, slope class and land cover), using results of the LUCAS survey point information. This is done through the application of a spatial statistical technique, a *Locally Weighted Logit model*, which results in normally distributed predictions of crop shares per HSMU. This approach results in the expression of expected shares of agricultural crops as probability density functions (pdf), i.e. in each HSMU mean and variance of the shares of 30 agricultural crops and one aggregated non-agricultural land use are estimated.

Step 2: The creation of an optimal distribution of the agricultural crops over the HSMUs according to total crop areas at Nuts 1/2 level provided by FSS. This optimalisation is based on a *Bayesian Highest Poterior Density* method and maximizes the posterior density of crop shares within the totals for the Nuts regions. It aims at creating an optimal consistency between scales, i.e. between the totals at Nuts 2 and HSMU levels.

In Figure 2.2 the spatial allocation procedure is illustrated systematically. If in a certain Nuts II region there are only two HSMUs, each comprising of two crops – grassland (GRAS) and soft wheat (SWHE). Combining the LUCAS survey with digital maps provides several observations of crops grown at a defined points characterised by a set of natural conditions. By using an adequate estimation model we can regress the probabilities of finding a crop at a certain location with specific natural conditions. As this probability can be interpreted as the share of the crop in a homogeneous region, applying these estimated coefficients to the average natural conditions in a certain HSMU gives a normally distributed prediction of crop shares for this HSMU under corresponding assumptions on the stochastic processes governing crop choice. This a priori information on cropping shares is generally not consistent with the “known” cropping area in the Nuts II region. The “best” set of data-consistent shares given the prior information is then identified by a Bayesian *highest posterior density* (HPD) approach. The concept of the HPD estimator allows the direct inclusion of the uncertainty of the prior mean. The variance can be derived from asymptotic properties or bootstrapping procedures. For a more detailed description of the statistical allocation procedure see Box 1.

Figure 2.2 Scheme of land use allocation procedure



Box 1: More detailed information on the allocation approach on the application of the *Locally Weighted Logit* and the *Bayesian Highest Poterior Density* model

The LUCAS survey reports only one point in time observations and hence does not deliver cropping shares (or rotations), and therefore requires a binary choice model. The likelihood function of finding crop *c* at a specific LUCAS point *i* for the binomial logit model is defined as:

$$\Lambda(\boldsymbol{\beta}'\mathbf{x}_i) = \frac{e^{\boldsymbol{\beta}'\mathbf{x}_i}}{1+e^{\boldsymbol{\beta}'\mathbf{x}_i}}$$

$$\log L = \sum_{i=1}^{n} [y_i \log \Lambda(\boldsymbol{\beta}'\mathbf{x}_i) + (1-y_i)(1-\Lambda(\boldsymbol{\beta}'\mathbf{x}_i))]$$

where $\boldsymbol{Y}$ is a dummy vector indicating whether a certain crop was observed at a location *i* (y_i=1), $\mathbf{x_i}$ is the design matrix containing data on natural conditions and $\Lambda(\boldsymbol{\beta}'\mathbf{x}_i)$ is the probability that a specific crop is grown at location *i*.

Applying the estimated $\hat{\boldsymbol{\beta}}$ to the average natural conditions in a HSMU ($\mathbf{x}_h$) gives us a prior

estimate for the share of a specific crop in a certain HSMU:

$$\hat{\mathbf{Y}} = \Lambda(\boldsymbol{\beta}'\mathbf{x}_h) = \frac{e^{\boldsymbol{\beta}'\mathbf{x}_h}}{1+e^{\boldsymbol{\beta}'\mathbf{x}_h}}$$

The approach discussed above examines the crops independently from each other and thus neglects the information that crops compete for the available land, with two possible effects. Firstly, the error terms for the different crops are probably correlated, and secondly, the individual estimated shares do not add up to unity. However, both problems were not deemed crucial for the application at hand. Given the large number of observations, the possible gain of taking correlations between the error terms across crops into account is most probably small. Furthermore, the violation of the adding up condition for the shares is explicitly accommodated in the second step of the disaggregation procedure, the application of the Bayesian method, in which the estimated shares serve as prior information only.

The basic idea behind Locally Weighted Regression is to produce site specific coefficient estimates using Weighted Least Squares to give nearby observation more influence than those far away. Further on, the estimation for any specific site is limited to a number of observations within a certain bandwidth around the site. Locally Weighted Regression are mostly found combined with Least Squares estimators, but application to Maximum Likelihood Estimation as needed in the case of discrete dependent variables are described as well (Anselin et al. 2004).

The weight given to any observation i in constructing the estimate for site j is given by ω_{ij}. The tri-cube is a commonly used weighting function:

$$\varpi_{ij} = \left[1 - \left(\frac{\delta_{ij}}{d_j}\right)^3\right]^3 I(\delta_{ij} < d_j)$$

Where δ_{ij} is the distance between site i and observation j. d_j is the bandwidth and $I(.)$ is an indicator function that equals one when the condition is true. The effect of any one location in space on near points thus falls depending on the distance and becomes zero once the distance exceeds the bandwidth.

The second step of the disaggregation procedure identifies crop shares in each HSMU using the prior information on the estimated crop shares from the first estimation step under two data constraints: Firstly, adding up the areas per crop in each HSMUs must recover the cropping areas *CA* for that crop at NUTS II level. Secondly, the posterior shares in each HSMU must add to unity, including all non-agricultural land use from the LUCAS survey aggregated to the category “OTHER”. In opposite to the first step this requires simultaneous accounting for all crops *c* in all relevant HSMUs *h.* The notation is therefore extended, e.g. from *Y* to $Y_{c,h}$.

The crop areas in each HSMU are defined by multiplying the posterior shares $Y_{c,h}^{con}$ with the entire area A_h thus

$$\sum_{h \in N2} Y_{c,h}^{con} A_h = CA_{c,N2}$$

and the adding up to unity

$$\sum_{C} Y_{c,h}^{con} = 1$$

must be imposed.

As the predicted unrestricted shares will typically violate the constraints, a penalty function is necessary to define the optimal deviations from the predictions. Here, a *Bayesian highest posterior density (HPD) estimator* is applied allowing for a direct and transparent formulation of prior information from Step 1. The prior information is expressed as normal densities of predicted shares, with mean vector $\hat{\mathbf{Y}}_{c,h}$ and variance derived by the methods described before. After taking logs, the prior density function for the consistent shares $Y_{C,HSMU}^{con}$ is:

$$-\sum_{c}\sum_{h}\left[\log\left(\sqrt{2\pi}\mathbf{V}_{\mathbf{Y_{c,h}}}\right)+\frac{\left(\mathbf{Y}_{c,h}^{con}-\hat{\mathbf{Y}}_{c,h}\right)^2}{2\mathbf{V}_{\mathbf{Y_{c,h}}}^{\mathbf{2}}}\right]$$

The previous equations describe the basic methodology of the dissaggregation procedure whereas some details can be varied, e.g. the logit estimation can be done for a subset of locations that belong to the same Corine class or only points where any arable crop was observed. Furthermore the land use on administrative regions can be taken from different sources.

For further information see: Kempen, et al., forthcoming

2.4 Dynaspat land use map results and validation

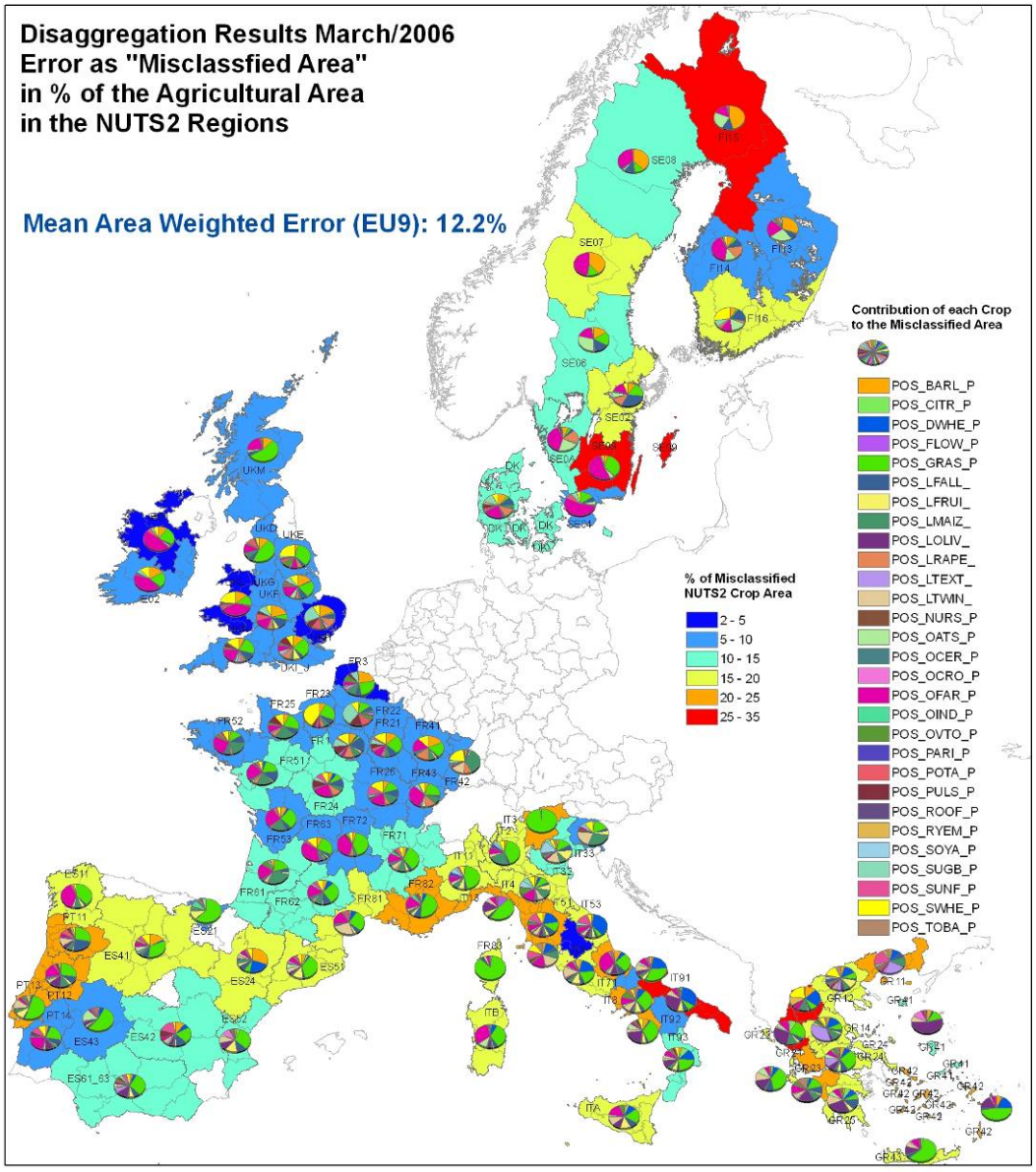
Here the allocation results are validated with national and regional statistical sources which provide crop information at lower regional levels (Nuts 3, 4 or 5) than the Nuts 1/2, the levels from which the original FSS data were allocated. Note that such detailed data is only available in a limited number of Member States.

Since it is impossible to present the actual outcome of the allocation procedure here, it would involve the presentation of land use shares of 30 different crops in 100.000 different HSMUs, some validation results are shown for a selection of regions, where Nuts3 land use was reported in FSS.

This was first done for a large part of EU15. The results of the comparison are presented in Figure 2.3. They show the relative mismatch between crop shares resulting from the allocation results (reaggregated to NUTS 2 level) and the statistical land use results. Overall one can see that the allocation matches better with the statistical shares of crops that are more common, so with a significant land use share. The smaller the share, the lower the chance the allocation results match with the statistics. Furthermore, allocated results are less accurate in Mediterranean areas and most northern parts of EU. In regions with a high percentage of misclassified area often grassland accounts for a significant part of the errors. This is surprising since grassland has its "own" Corine land cover class and indicates that misclassification might not only be a consequence of a poor disaggregation procedure but also a result of contradictious data sources[1]. Nonetheless the dissaggregation is a significant improvement compared to the assumption of identical cropping pattern within each Nuts II region.

[1]The Corine land cover map reports indeed about 2 Mio ha "Pasture" and "Natural Grassland" in Spain while in the FSS statistics report around 9 Mio ha Grassland.

Figure 2.3 Comparison of disaggregation results with the statistical information at Nuts 2 level.



Results and validation for the Netherlands

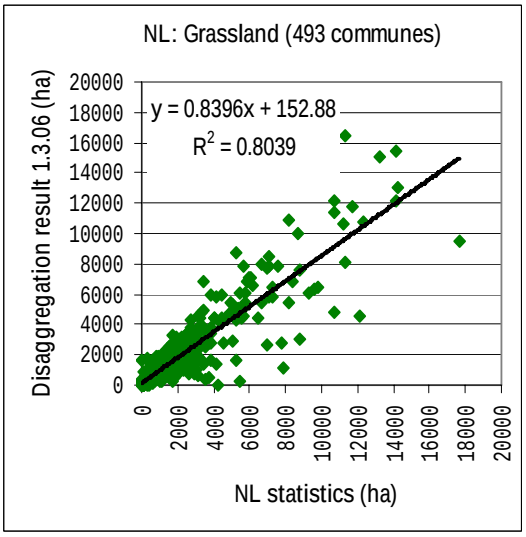
The results of the allocation were validated for The Netherlands at individual crop level for a selection of crops (see Figure 2.4). The allocated results for individual crops were aggregated to the level of municipalities (NUTS4). Since the NUTS2 data calculated from this NUTS4 land use is not fully consistent to FSS it is not meaningful to calculate the percentage mismatch as done before. Instead the dissaggregation result was compared in a correlation to statistical crop totals.

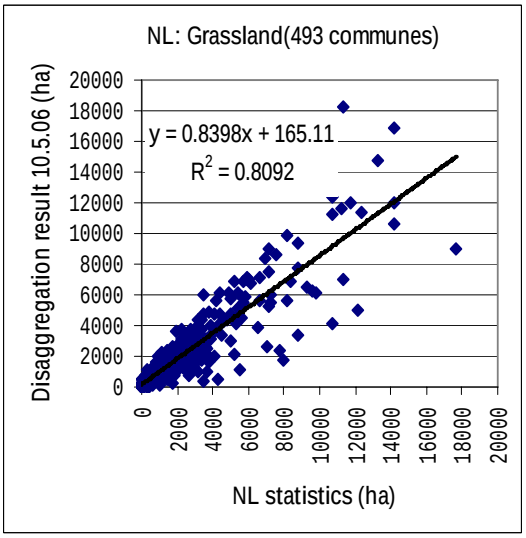
Figure 2.4 shows results of this validation process comparing two different specifications of the dissaggragation procedure. The figures on the left are based on results where only observations from certain Corine classes were incorporated in the binary choice estimation. Those on the right stem from a nested procedure where after fixing the arable land in a HSMU the "crop rotation" was calculated based on a Logit estimation using observations on arable land. This nested procedure was only done for the allocation of the arable crops (not vegetables and perment crops) and it involved the incorporation of an extra step in the allocation. This extra step involved allocating the crops first by only taking the CLC on the share of arable land in each HSMU into account. This share was then fixed and for this share a second allocation was done in which the natural conditions, i.e. soil, slope, climate, were involved.

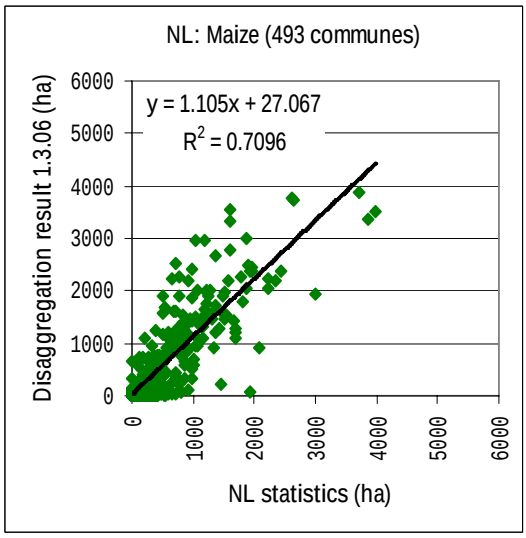
Both specifications show very good validation results for the most important crop categories, with correlations ranging from 0.8-0.9 between the allocated results and the statistics. However, when comparing the right and left validation results the right figures give a better result and the corresponding nested procedure used for the results on the right was therefore also chosen in the farm allocation (see Chapter 3) .

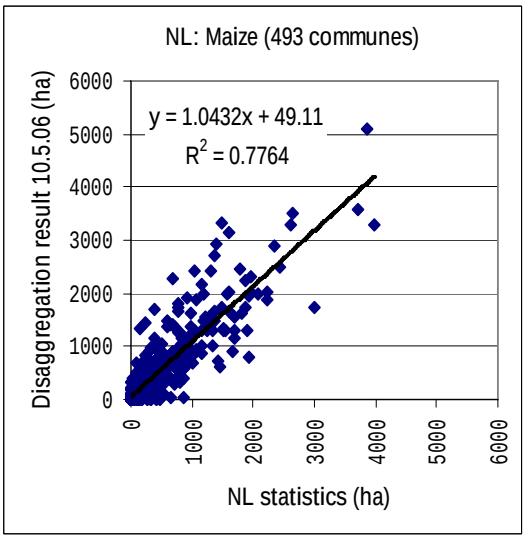
Overall it becomes clear from the validation results that the most important crops in The Netherlands (in terms of land use), i.e. potatoes, sugar beet, maize, grassland and soft wheat, seem to be reliably allocated. Both barley and rye show a much lower correlation between the allocated and the statistical totals because these crops are less important in terms of land use and are not much different in terms of land use requirements from the more common crop wheat. Because of their much lower occurrence fewer observations in LUCAS are available for these crops to statistically identify the right relations with bio-physical factors.

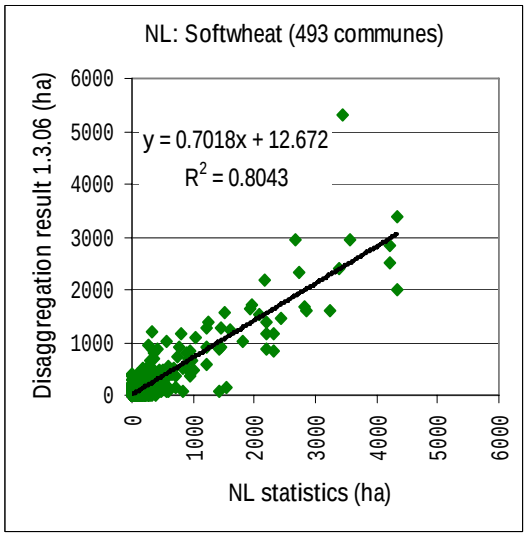
Figure 2.4: Correlation results between the disaggregated crop areas and the statistical crop areas for the main agricultural crops at NUTS 4 level

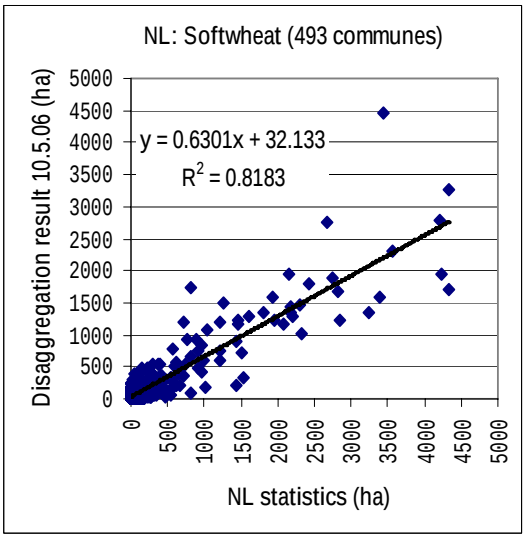


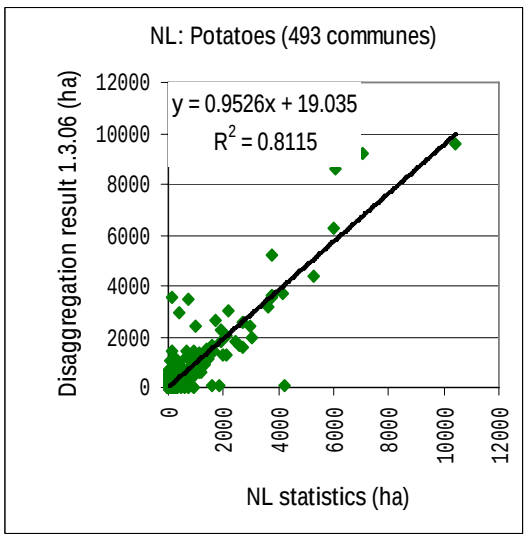


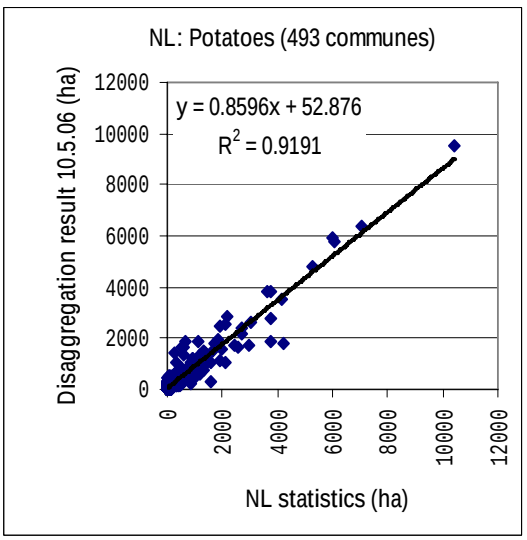

NL: Maize (493 communes)
y = 1.105x + 27.067
R2 = 0.7096
Disaggregation result 1.3.06 (ha)
NL statistics (ha)
0
1000
2000
3000
4000
5000
6000

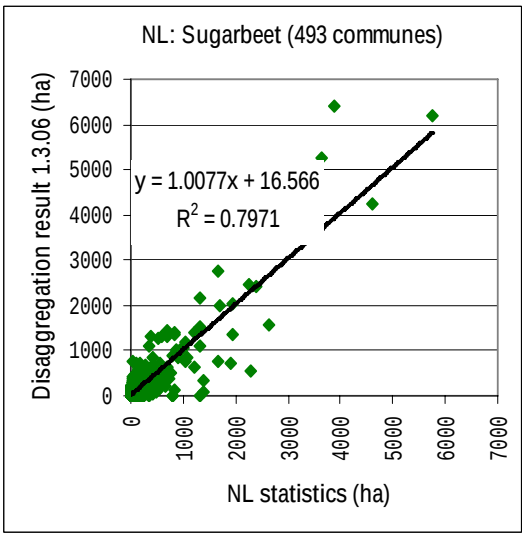

NL: Maize (493 communes)
y = 1.0432x + 49.11
R2 = 0.7764
Disaggregation result 10.5.06 (ha)
NL statistics (ha)
0
1000
2000
3000
4000
5000
6000

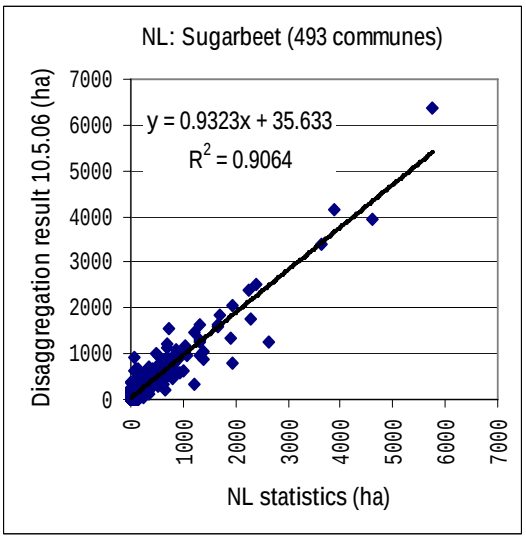

NL: Softwheat (493 communes)
y = 0.7018x + 12.672
R2 = 0.8043
Disaggregation result 1.3.06 (ha)
NL statistics (ha)
0
1000
2000
3000
4000
5000
6000

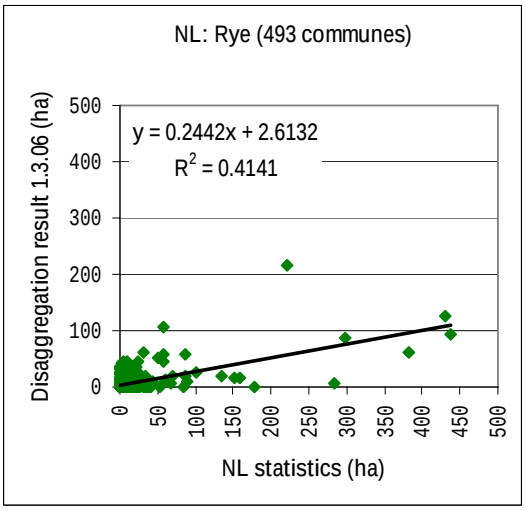

NL: Softwheat (493 communes)
y = 0.6301x + 32.133
R2 = 0.8183
Disaggregation result 10.5.06 (ha)
NL statistics (ha)
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000

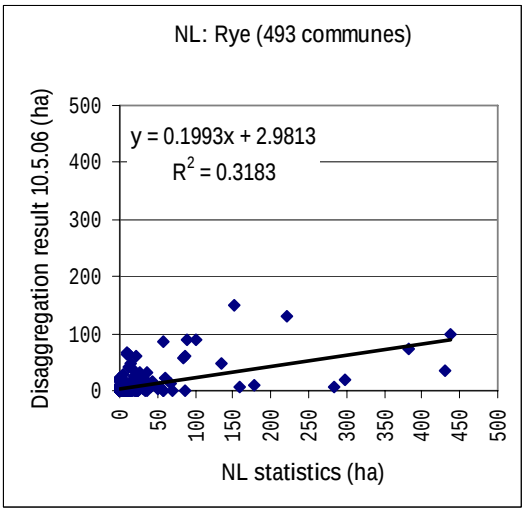

NL: Potatoes (493 communes)
y = 0.9526x + 19.035
R2 = 0.8115
Disaggregation result 1.3.06 (ha)
NL statistics (ha)
0
2000
4000
6000
8000
10000
12000

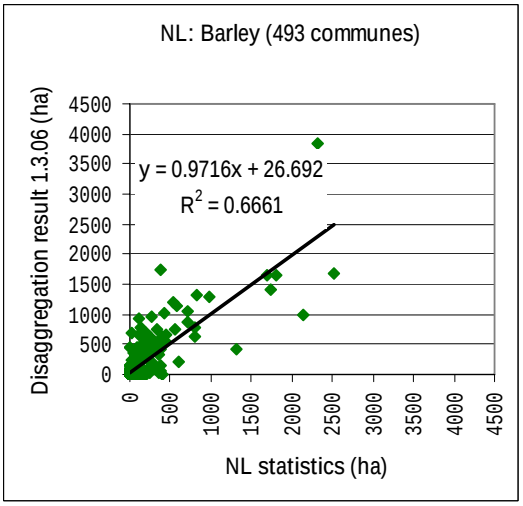

NL: Potatoes (493 communes)
y = 0.8596x + 52.876
R2 = 0.9191
Disaggregation result 10.5.06 (ha)
NL statistics (ha)
0
2000
4000
6000
8000
10000
12000

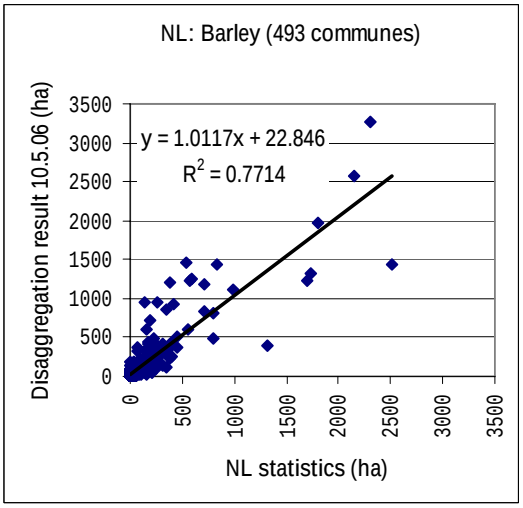












For further validation results see also Kempen, et al. forthcoming.

3 The spatial allocation for FADN farm information: Creating a spatially explicit farm typology for Europe

In this chapter we describe the methodology for the spatial allocation of the FADN farm information taking the land use information and other attributes assigned to the HSMUs in the Dynaspat project as a basis. The result of the allocation is a locational dimension to every individual farm contained in the FADN data base. This locational dimension will exist, like for land use, of a reference to a Farm Mapping Unit (FMU) and a Homogenous Spatial Mapping Unit (HSMU) in which the farm is most likely to be located. The individual FADN farm can than be aggregated to any cluster of farms (SEAMLESS farm types) per cluster of HSMUs. This aggregated information can than be presented provided the FADN disclosure rules, which prescribe a minimal representation of at least 15 FADN sample farms, are not violated. However, the information on the share of the agricultural land managed by the different farm types can always be presented as this is not linked to the FADN variables as such, but are merely a calculated probability.

The methodology for the farm allocation is very similar to that used for producing the land use allocation in Dynaspat. In the next section we will first discuss what input data is used. We will pay extra attention to the use of farm information from the Farm Accountancy Data Network (FADN) as this has advantages and disadvantages and knowledge of this is crucial for understanding how the allocation results should be used and interpreted.

In section 2 the allocation methodology is explained which is very similar to the land use allocation approach. In the last section the validation of a selection of results is presented.

3.1 Input data for the production of the Dynaspat land use map

The input data used for the allocation of farms within administrative regions are shown in Table 3.1. The individual FADN farms are distributed to Farm Mapping Units (FMUs), which are an aggregation of HSMUs. The use of FMUs is only necessary to simplify the allocation procedure and decreasing the computer calculation time. After the farms have been allocated to the FMUs they are also linked to HSMUs as for every FMU the link to the HSMU is consists of is maintained. The distribution uses predictions of the presence of a certain farm in the specific FMU and is based on a range of variables characterizing the farms available in the FADN database, which can be matched with the mapped attribute information for all FMUs. The whole range of other data sources used for the prediction the presence of certain farms in a FMU are given in Table 3.1. The main information source for making the prediction of the presence of a farm is the Dynaspat land use information (Chapter 2) but in addition to this other attribute information on location

in altitude zone and Less Favoured Areas (LFAs) and yielding capacity are also used. LUCAS point information is not used directly, but this information is indirectly incorporated through the use of the Dynaspat land use information for predicting farm shares.

Table 3.1 Distribution data and additional data sources used for the allocation of farms

Distribution data	**Indicators used**	**Source**
Individual farm information at FADN region level	Per farm: - Cropping pattern (total area, area per crop) - Location in altitude zone - Location in LFA - Yield level of main crops	FADN, 2003, EC-DG-Agri
Attribute information to predict farm type shares in a FMU/HSMU	**Indicators used**	**Source**
Dynaspat land use	Shares of 30 different crops per HSMU/FMU	*CAPRI-DynaSpat project (EC-no. 501981)*
Relief	Elevation	Digital Elevation Model (CCM DEM, 250 meters). EC, JRC-IES, 2004).
Soil yielding capacity	Potential yields for main agricultural crops	*JRC-MARS-Yield Forecast System (MARS-CGMS). See: http://agrifish.jrc.it/marsstat/Crop_Yield_Forecasting/crop_yield_forecasting_system.htm*
Less Favoured Areas	EU-LFA boundaries EU15	EC-JRC, LFA boundaries map

The main statistical data sources with farm information in the EU are the Farm Structural Survey (FSS), which forms part of the *Eurofarm* database provided by Eurostat, and the Farm Accountancy Data Network (FADN) provided by the European Commission, DG-Agri. In the allocation procedure the FADN farm data will be the central data used.

FSS provides figures on structural characteristics of agriculture in the EU, classified by farm type, farm size and region. FSS is periodically conducted in order to collect data on the structure of farms in the EU. The time frame of data collection is that every 10 years a census is conducted and every 2 years sample surveys are done providing less extensive data than in the census. The census data are presented at district level (NUTS 3) and the sample surveys at a less detailed regional level.

FADN is based on a representative sample of all agricultural holdings. The sample covers about 60,000 holdings in EU15 (in 2000), and the database is now being extended to the rest of the EU with new data expected for a selection of new MS in 2006 already. Users of this database can, with certain restrictions, work with individual farm data. Figures are available on an annual basis for the European Union as a whole, distinguishing between about 125 regions (NUTS 1 or 2) in EU25 by farming type. The FADN is based on a sample of holdings, representing a large share of agricultural production, with the main purpose of providing a good overview of costs and revenues, income generated from agriculture, also including subsidies. But the database also contains a broad set of variables on land use, crops, livestock, input levels (expressed as costs), labour, machinery, yields etc. FADN is updated yearly enhancing the usefulness for monitoring purposes.

In SEAMLESS the main source of statistical farm information is the FADN because it contains a much broader set of data than FSS which is especially suited as input data for economic modelling. The choice of the FADN dataset as the main source of input into SEAMLESS is logical, given the purposes of the SEAMLESS project and the extensive list of variables available per farm. FADN data also enable the construction of farm types needed to establish links between economic and environmental aspects of the farm holdings. The FADN data on individual farms can be grouped on a range of variables, whilst with the aggregated data from the FSS and REGIO database this would not have been possible. It is also an important factor, that former work on farm typologies in the ELPEN, HNV farmland and IRENA projects could be used as a basis for the further typology development in SEAMLESS.

The disadvantage of the European data is that most data is only available on relatively big administrative entities and that these entities can vary very strongly in size between the different EU countries. There is a need to find techniques to disaggregate the statistical information to lower geographic entities. Allocation is the only way to make the statistical data useful input for assessing the impacts of farming on the environment as it requires a close estimation of the farming activity in relation to bio-physical characteristics.

Another problem of working with these data sources is that, if there is data available at the farm level, like in FADN, this can only, because of privacy reasons, presented on an aggregated (administrative entity) level and not on the individual farm level. For FADN the disclosure rule is that farm information can only be presented if it is represented by at least 15 sample farms. A way to solve part of this problem is to build meaningful typologies, which has been done in SEAMLESS (see PD 4.4.2). With the typologies farm information can be displayed on the farm type level provided it represents an average based on at least 15 farms that belong to the same farm type group.

For the allocation approach the FADN farms will form the main input. This also implies that the farm information (or parts of it) needs to be disaggregated within the rather large FADN regions which are usually equivalent to NUTS1/2 regions.

It should also be realised however that there are disadvantages connected to the FADN database. Firstly, the most important limitation is that the sample farms that occur in FADN might not represent all farming systems in the EU very well (or not at all). In total the FADN represents 52% of the farms and 86% of the Utilised agricultural area in EU-15, when compared to the data in the Farm Structural Surveys (see Table 3.2).

Table 3.2: The number of farms and area of utilised agricultural area (UAA) represented in FADN (2000) and the share of the farms/UAA covered compared to FSS (Farm Structural Survey, FSS 2000).

	No. of farms represented in FADN	UAA represented in FADN	Share of FSS-farms represented in FADN %	Share of FSS-UAA represented in FADN %
Belgium	42464	1442890	63	104
Denmark	49934	2595416	79	97
Germany	282429	15282780	53	89
Greece	484566	2993321	59	86
Spain	539907	16551642	45	65
France	387210	25301779	57	89
Ireland	128737	4904409	87	113
Italy	998375	11603783	43	78
Luxembourg	1763	107154	59	85
Netherlands	82512	2102937	76	105
Austria	86220	2139713	41	63
Portugal	301846	3664020	72	96
Finland	52137	1832882	57	84
Sweden	38021	3331265	42	107
United Kingdom	128110	16945535	55	105
EU 15	3604231	110799526	52	86

Source: FADN-CCE-DG Agriculture/A-3; Farm Structural Survey; adaptation LEI.

The exclusion of economically small farms explains most of the missing farms and agricultural area in the FADN sample. Comparing the different Member States an average of 46% of the farms and 14% of the Utilised Agricultural Area are not included in the FADN data due to the elimination of the small farms. This varies from Ireland, where only 13% of the farms are not included while too much Utilised Agricultural Area is included, to Austria, where 59% of the farms and 37% of the utilised agricultural area are not represented. It is important to stress that economically small and 'non-professional' farms may in fact be physically large and apparently full-time, particularly in marginal areas where the land has low productivity but alternative employment is scarce.

Apart from the results presented in table 3.2, a comparison with the FSS data also reveals that mixed livestock farms and beef cattle farms are not very well represented in FADN, though considerable differences occur between the different Member States.

Thirdly, a major weakness of FADN is that its major unit of data collection is the Utilisable Agricultural Area (UAA), *not* the area actually occupied by the agricultural business. Seasonal lets (common in some countries, such as Ireland) or wintering/summering arrangements, as well as the use of common land and the grazing of fallows, are excluded from consideration. For the spatial allocation of farms this aspect should be taken into account as it means that the influence on land use cannot be limited to the land owned or rented by the farm.

Although FADN is the main source of information in SEAMLESS, especially for the modelling in CAPRI and FSSIM, it will not be the only source. FSS information, as has been shown in Chapter 2, is used as the main source of information for the production of the Dynaspat land use. The Dynaspat land use database is an important information base for predicting the FADN farm locations.

3.2 Methodology for allocation of FADN farm type information

The methodology for the farm allocation is very similar to that used for producing the land use allocation in Dynaspat (Chapter 2). The main difference is however, that instead of using the HSMUs as the basic spatial entities to which farms are allocated a clustering of HSMUs, so-called Farm Mapping Units, are used. This clustering is necessary to reduce the complexity of the allocation procedure. The final allocated results are still linked back to the original HSMUs of which the FMUs composed. For the presentation of the results farm allocation results will therefore first be linked to HSMUs and than aggregated to farm types in Agri-environmental zones.

The allocation of FADN farm information is done in steps:

1. Aggregation of HSMUs into FMUs
2. Create fixed distribution of FADN farms over dominant altitude and LFA and non-LFA zones
3. Identify optimal match between farm cropping patterns and potential yield levels and land use patterns in (a regional cluster of) FMUs by applying a *Bayesian Highest Poterior Density* method

Step 1: Definition of FMUs

In order to reduce the complexity of the allocation procedure a clustering of HSMUs was necessary. Whereas the HSMUs were designed to be homogenous regarding land use, the FMU should create continuous regions in which a fit with the UAA of a farm

can be made and a link can be established between farms yield levels and soil conditions determining potential yields. Therefore the soil mapping units were chosen as the main attribute according to which the HSMUs were clustered into FMUs. Since location in altitude zones and LFA are the other robust statistical information on which the location predictions are made the dominant altitude class and presence of LFA was the second clustering layer used. Finally it was also ensured that clusters into FMUs could only be created within a Nuts2/3 boundary.

Depending on the region this clustering results in a reduction of spatial units of 80% - 90%, e.g. in the Netherlands about 900 HSMU end up in 200 FMU. In Midi-Pyrenees the number goes down from 2200 to 250.

Step 2: Consistent allocation of farms in altitude zones and LFAs

The variable of interest is the probability of finding a certain farm in a specific FMU $p_{f,fmu}$. As a single farm in the FADN sample represents many similar farms this probability can also be understood as the share of these farms being allocated in a specific FMU. From the FADN statistics it can be exactly derived which farms are located in a certain altitude zone and wheather located in a LFA (see Table 3.1). This information is taken as fixed and given, i.e. if the FADN farm and the FMU do not belong to the same combination of LFA and altitude zone the probability $p_{f,fmu}$ of finding this farm in this FMU is fixed to zero. An obvious constraint in the allocation procedure is that the probabilities for each farm must add up to unity:

$$\sum_{fmu} p_{f,fmu} = 1$$

Table 3.3 Example of distribution agricultural area per administrative region over altitude zones and Less Favoured Areas (LFAs)

	LFA			Not LFA		
	FADN	*FMU*	*adj*	*FADN*	*FMU*	*adj*
< 300m	1186	1305	0.91	50	70	0.71
300m - 600m	682	599	1.14	9	13	0.69
>600m	329	367	0.90	0	0	1.00

Another natural constraint refers to the agricultural area of farms and FMUs

$$\sum_{f} p_{f,fmu} A_f = A_{fmu}$$

Where A_f is the UAA represented by a FADN farm and A_{fmu} the agricultural area in a FMU respectively. If the area derived from different sources is not fully consistent an adjustment factor is calculated to enforce consistency. This consistency ensures that the number of farms and their related farm area in different altitude zones and

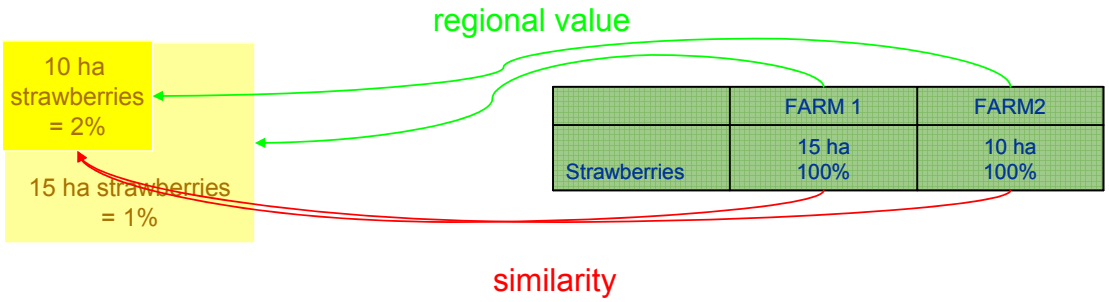
LFA and non-LFA areas fits exactly to the available agricultural areas in altitude and LFA zones located in the cluster of FMUs making up the administrative region for which the FADN data are given (see also Table 3.3).

$$\sum_{f} p_{f,fmu} A_f = adj\ A_{fmu}$$

Step 3: Identify optimal match between cropping patterns and yield levels on farms and of FMUs

The allocation of farms in this step is based on yields and land use decisions. Whereas in the case of yield the findings on a single farm should be similar to those in a FMU, in the case of land use information this could be interpreted in different ways. On the one hand it could be assumed that farms in a FMU look alike and therefore the predicted land use in a region should be similar to that of farm level. On the other hand, a region could also be managed by different specialized farms (see Figure 3.1). In this case the aggregated land use of all farms allocated in a region should be close to the predictions on this region. This formulation is in line with the predicted mean and variance used in the Dynaspat project for land use allocation and will be used in the following procedure to allocate the farm to the FMUs.

Figure 3.1 Different concepts to allocate farms based on land use information



The a priori information on land use levels in the FMU is given in the form of probability density functions. We assume a normal distribution characterized by mean $\mu_{c,fmu}$ and variance $\sigma_{c,fmu}$ derived from the Dynaspat HSMU land use levels.[2]

$$f(x;\mu_{c,fmu},\sigma_{c,fmu}) = \frac{1}{\sqrt{2\pi}\sigma_{c,fmu}} e^{-\frac{1}{2}\left(\frac{x-\mu_{c,fmu}}{\sigma_{c,fmu}}\right)^2}$$

After taking logs and summing over all crops and FMUs the objective function based on the highest posterior density concept is consequently:

$$-\sum_{c}\sum_{fmu}\left(\log\left(\sqrt{2\pi}\sigma_{c,fmu}\right)+\frac{1}{2}\left(\frac{x_{c,fmu}-\mu_{c,fmu}}{\sigma_{c,fmu}}\right)^2\right)$$

where $x_{c,fmu}$ are the land use levels aggregated over all farms allocated in the specific FMU

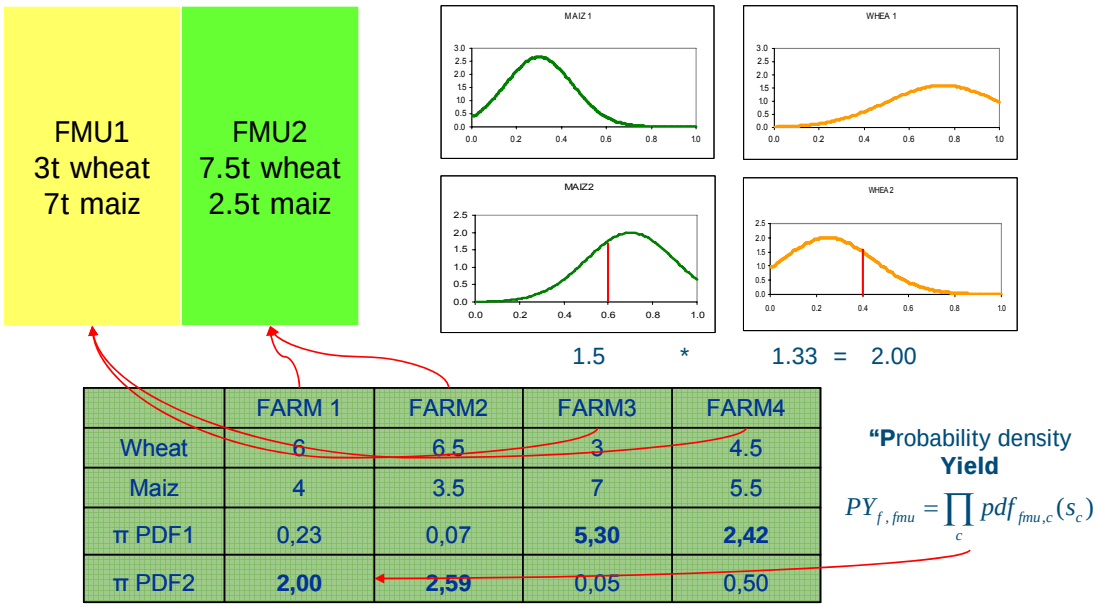
$$\sum_{f} p_{f,fmu} x_{c,f} = x_{c,fmu}$$

with the land use levels represented by a FADN farm $x_{c,f}$

In the case of yield, the mean value of a FMU is taken from the simulated MARS yields. It is assumed that yields observed on a farm differ from the long term average yields because of some random management skills of the farmer. This management skills account for the uncertainty in the FMU yields, but their variance is not known. Instead it can be expected that the variance is equal over all FMUs it can be derived by comparing a histogram for FMU and FADN farms. It can than be assumed that outcome for the FADN farms is the result of the aggregated normal distributions around the means $\mu_{y,fmu}$ of the FMU with a variance $\sigma_{y,fmu}$ chosen to minimize the divergence from the observed farm yield histogram.

[2] Mean and variance are derived applying rules for linear combinations of random variables assuming a covariance of zero.

Figure 3.2 Using Probability Density Functions for matching the yields on farms with FMU yields



The optimal allocation based on the yield observations can henceforth be found by maximizing:

$$-\sum_{y}\sum_{fmu}\left(p_{f,fmu}\log\left(\sqrt{2\pi}\sigma_{y,fmu}\right)+\frac{1}{2}\left(\frac{x_y-\mu_{y,fmu}}{\sigma_{y,fmu}}\right)^2\right)$$

where x_y is the yield observed on a farm for a relevant crop *y*.

The final allocation of the farms to the FMUs can than be based on the combination of the outcome of the application of both above discussed probability density functions for matching land use and yield levels between the individual farms and the FMUs .

3.3 Validation of farm type allocation

In this section outcomes of the allocation for a selection of regions are presented and compared to real statistics to come to some validation. The allocation results are compared with national and regional statistical sources which provide farm type information at lower regional levels (Nuts 3, 4 or 5) than the Nuts 1/2, the levels from which the original FADN data were disaggregated.

For the creation of the definite farm allocation results, used in the SEAMLESS Prototype 1, the following validations were done:

1. Validation of allocation in The Netherlands with Dutch statistical information at Nuts 3 (Province)
2. Validation of allocation in Midi-Pyrenées with FSS statistical information at Nuts 3 (Commune)

Validation for The Netherlands

In Figure 3.3 a comparison is made between allocated and statistical shares of agricultural area (from GIAP[3]). managed by arable farming types. In Figures 3.4 the allocation results and statistics are correlated for different arable farms. From this validation it can be concluded that the geographic pattern produced by the allocation is good as it correlates very well (R2=0.99). Overall the shares of UUA managed by different farm types per province are hardly different between the allocated and statistical data and there are no extreme outlayers.

[3] The Dutch statistical source used is GIAB (Geografische Informatie Agrarische Bedrijven) which contains per farm information at the postal ZIP code level. The farm information is derived from the National Farm survey which repeated yearly for the whole farm population of The Netherlands.

Figure 3.3 **Validation results comparing allocated share of agricultural land managed by arable farms per Nuts 2 (Province) in The Netherlands with statistics**

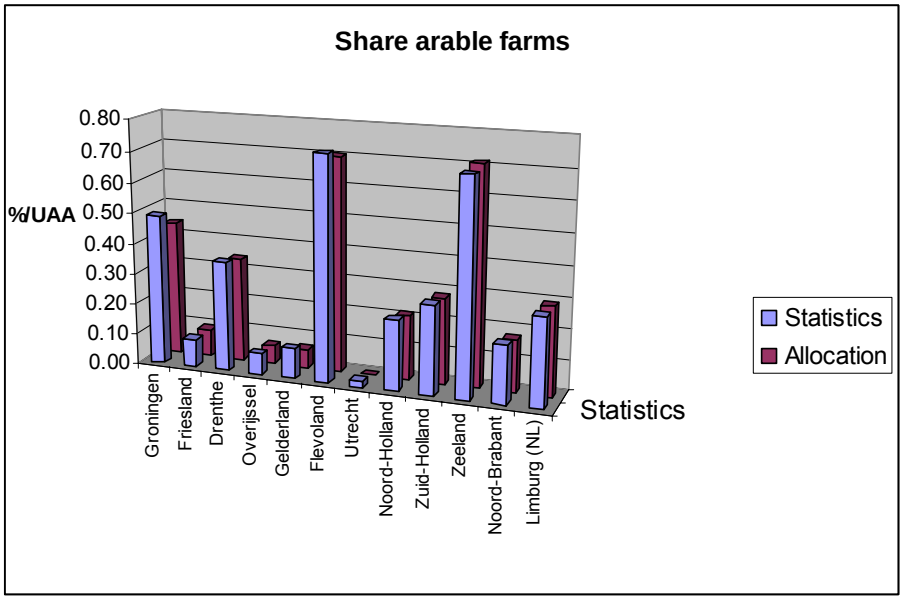
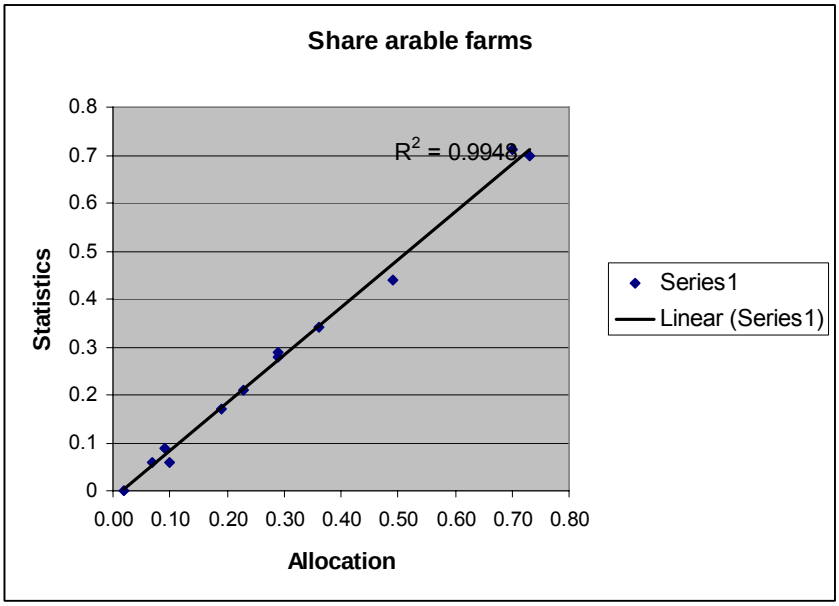


Figure 3.4 **Validation results: correlation between allocated share of agricultural land managed by arable farms per Nuts 2 (Province) in The Netherlands and statistics**



Validation for Midi-Pyrenées

For the Midi-Pyrenées region exactly the same comparison procedure was followed. Figures 3.5-3.7 show the results. It becomes clear that the allocation results show a less perfect match with the statistical data, with a lower correlation, than for the Dutch situation. However the match is still very good with a correlation of 0.8 for arable farms and 0.75 for dairy. Overall there is still some difference in shares of agricultural land managed by arable farms per Commune between the allocated and statistical data but there are no extreme outlayers. This is partly caused by the allocation and partly by differences in statistical sources, FADN and the FSS (NUTS 4) data. This makes a perfect validation difficult because of differences in representativity of FADN and farm population data from other sources (see Section 3.1).

The results of this allocation are also presented in the next Chapter for the four prototype regions.

Figure 3.5 Validation results comparing allocated share of agricultural land managed by arable farms per Nuts 4 (Commune) in Midi-Pyrenées with statistics

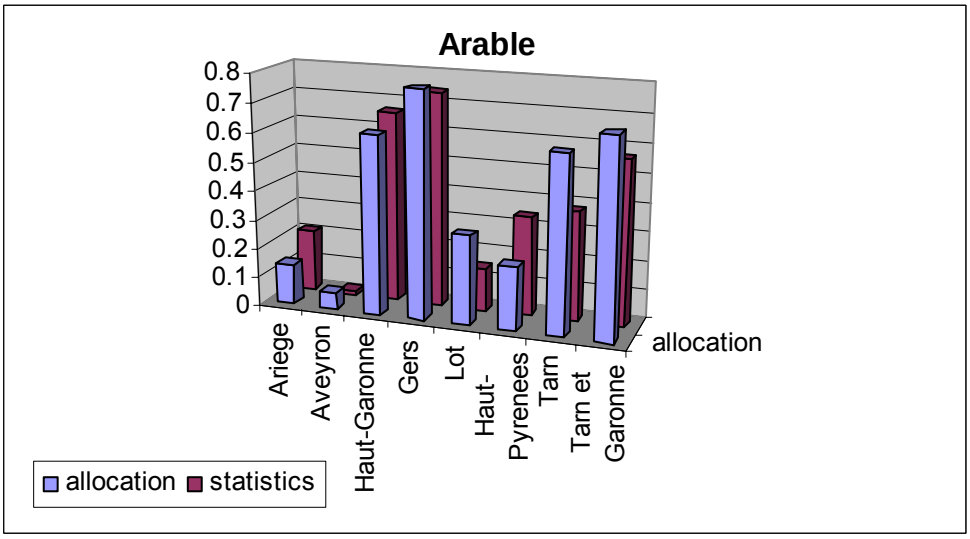


Figure 3.6 **Validation results: correlation between allocated share of agricultural land managed by arable farms per Nuts 4 (Commune) in Midi-Pyreneés and statistics**

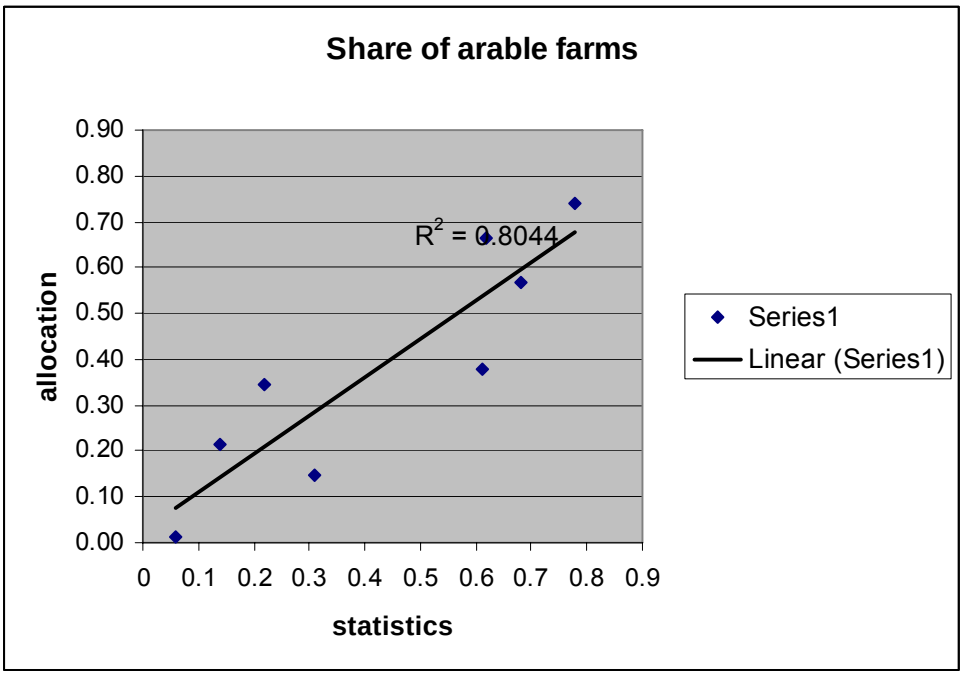
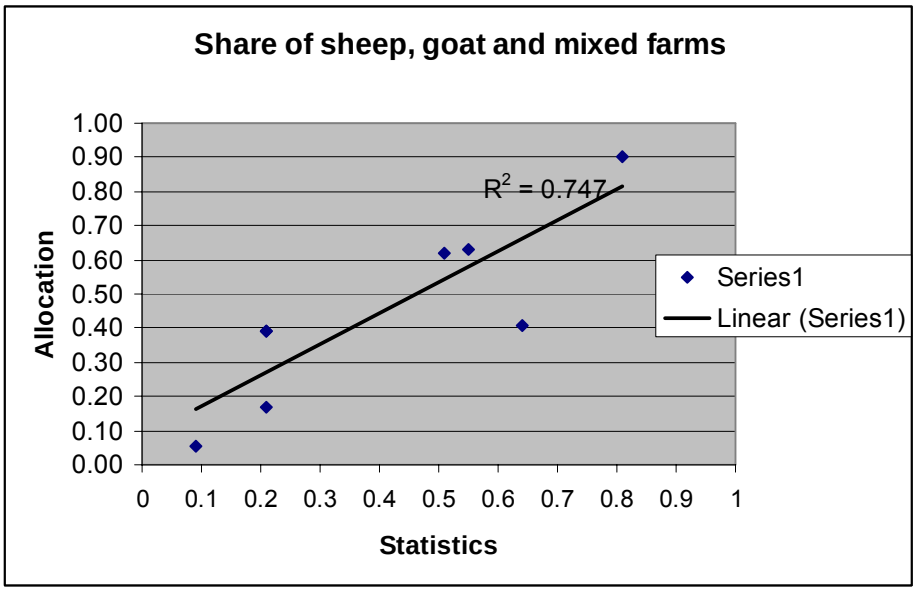


Figure 3.7 **Validation results: correlation between allocated share of agricultural land managed by sheep, goat and mixed farms per Nuts 4 (Commune) in Midi-Pyrenées and statistics**



4 Allocation results per prototype region

In this section the final allocation results for the farms are presented and discussed for the 4 prototype regions. The results are presented per agri-environmental zones (AEnZ). To make the allocated individual farm information presentable and to be able to use it as input in the FSSIM model the following steps were taken:

1. The individual farm allocation results linked to the FMUs were linked back to the HSMUs
2. All HSMUs were aggregated to the different dimensions of the AEnZ typology
3. The individual farms were linked through their FADN farm code to the three dimensions of the farm typology (see also PD4.4.2).
4. The farm typology dimensions were grouped within the AEnZ dimensions to total land use, land use share, total farm number and farm number share.

The results of the four steps are presented in Annex 1 and discussed in next Section (4.1) for the four prototype regions.

4.1 Farm allocation results per prototype region

It becomes clear that as expected the regions of Midi-Pyrenees and Andalucia are most diverse in terms of agri-environmental context and therefore have the largest diversity in farm types too. Flevoland has the lowest number of farm types (31) and Andalucia the highest with 88, and in between are Brandenburg with 38 and Midi-Pyrenees with 59. The highest number of Environmental zones occurs in Midi-Pyrenées with 5 and Andalucia with 3 and only 2 in Flevoland and even 1 in Brandenburg. The Organic carbon (OCTOP) classes are well spread over all Environmental zones but there is a clear dominance of certain OCTOP classes in terms of farming activities in certain regions.

Flevoland

In Flevoland there are only two farming systems that are very important in terms of land use and these are the large-arable-specialised-crops system and the large-arable-fallow land system which are mostly high and sometimes medium intensive. These systems occupy 54% and 16% of the land area occupied by farming in this region. These farming systems mainly occur in the main environmental zone, the Atlantic Central, which is occupying 90% of the farmland in this region. The main Topsoil organic carbon class in this EnZ is class 4 (3.94-5.66 %) occupying 85% of all agriculturally used area in this region. The most important farm types are listed in Table 4.1. The full list can be seen in the appendix.

Table 4.1 The most important farm types in Flevoland*

Farming type	Environmental zone	Top soil Organic carbon class	%/UAA Flevoland
3303: large-high intensive-arable specialised crops	7	4	48
3320: large-high intensive-horticulture	7	4	10
3203: large-medium intensive-arable specialised crops	7	4	7
3302: large-high intensive-arable fallow	7	4	6
3304: large-high intensive-arable	7	4	6
3305: large-high intensive-dairy permanent grass	7	4	6

* For further explanation see Annex 1.

Brandenburg

In Brandenburg there is only 1 environmental zone, Atlantic Central, which is mainly dominated by 3 Topsoil organic Carbon classes, 2 (1.23-2.46%), 3(2.46-3.94%) and 4 (3.94-5.66 %), each occupying about 25% of the farming area in this region. Within this region there are only 7 farming systems that occupy a significant share of the agricultural land. These dominant farming systems are the large medium intensive mixed farms (38%), the large-arable farms, either low or medium intensive (24%) and some large-medium intensive dairy systems. They are mainly concentrated in the organic carbon classes 2, 3, 4 and 6 (see Table 4.2).

Table 4.2 The most important farm types in Brandenburg*

Farming type	Environmental zone	Top soil Organic carbon class	%/UAA Branden-burg
3101:Large-low intensive-arable cereal	7	4	5
3201: Large-medium intensive-arable cereal	7	2	6
3218: Large-medium intensive mixed farm	7	2	10
3218: Large-medium intensive mixed farm	7	3	10
3218: Large-medium intensive mixed farm	7	4	8
3218: Large-medium intensive mixed farm	7	6	5
3204: Large-medium intensive-arable	7	2	3

* For further explanation see Annex 1

Midi-Pyrenées

The AEnZ of this region is rather complex as it consists of 5 environmental zones which are further subdivided in almost all Soil organic carbon classes and all three agri-masks. However in terms of agricultural land use only 4 environmental zones are important; The Mediterranean North EnZ is the most important occupying 47% of the agricultural area followed by the Mediterranean Mountain zone with 28%, Lusitanian 20% and Alpine South with 5%. The Agri-mask regions 1 and 2 are mostly occurring in the Mediteranean Mountains and Alpine South zones. In terms of agricultural land use these zones are relatively unsignificant however. The Organic carbon contents classes most important per environmental zone are classes 2 and 3, occupying in total more than 60% of the agricultural area in this zone.

The main farm types occurring in this region are the large scale-medium intensive arable farms occupying more than one quarter of the agricultural land, the large scale medioum intensive sheep and goat systems using 9% the land, the large-scale medium intensive mixed farms using 6% and the medium scale-medium intensive beef temporary grass systems with 4% of the land. In terms of environmental endowment of these systems, this is specified in Table 4.3.

Table 4.3 The most important farm types in Midi-Pyrenées

Farming type	**Environ-mental zone**	**Top soil Organic carbon class**	**Agri-mask**	**%/UAA Midi-Pyrenées**
3201: Large-medium intensive-arable cereal	12	1	0	3
3201: Large-medium intensive-arable cereal	12	2	0	5
3201: Large-medium intensive-arable cereal	9	2	0	1
3204: Large-medium intensive-arable	12	1	0	3
3204: Large-medium intensive-arable	12	2	0	4
3214: Large-medium intensive-sheep&goats	11	2	0	1
3214: Large-medium intensive-sheep&goats	11	3	0	2
3214: Large-medium intensive-sheep&goats	9	2	0	1
3218: Large-medium intensive-mixed	11	3	0	1
3218: Large-medium intensive-mixed	9	2	0	1

2210: Medium-medium intensive-beef and mixed cattle temporary grass	11	3	0	1

* For further explanation see Annex 1

Andalucía

The Andalucian region is most complex in terms of farming systems with 88 different systems. The region consists of 3 Environmental zones with Mediterannean South being the most dominant occupying 83%, Mediterranean North 11% and Mediterannean Mountains 6% of the agricultural areas. The most important topsoil organic carbon class dominating these EnZ is class 1 with an agricultural land use of even 67% concentrated only in EnZ Mediterannean South. Of the two other zones almost half of the area is in this topsoil organic carbon class.

In terms of farming systems there are a large range of different types, but like in Midi-Pyrenees, only a selection of these have a clear dominance in terms of land use importance. These are the medium intensive-permanent crop systems of either small, medium or large size occupying almost 30% of the agricultural land area, the large scale low to medium intensive arable systems with 16% agricultural area accupation, the mixed farm systems with 6% of the agricultural area and sheep and goat systems with 4%. The most important farm types are presented in Table 4.4.

Table 4.4 The most important farm types in Andalucía

Farming type	**Environmental zone**	**Top soil Organic carbon class**	**Agri-mask**	**%/UAA Andalucía**
1221: Small-medium intensive-permanent crops	13	1	0	6
1221: Small-medium intensive-permanent crops	13	1	2	1
2221: Medium-medium intensive-permanent crops	13	1	0	3
3221: Large-medium intensive-permanent crops	13	1	0	5
3221: Large-medium intensive-permanent crops	13	2	0	1
3221: Large-medium intensive-permanent crops	12	1	0	2
3221: Large-medium intensive-permanent crops	12	2	0	1

3101: Large-low intensive-arable cereal	13	1	0	6
3104: Large-low intensive-arable	13	1	0	3
3204: Large-medium intensive-arable	13	1	0	4
3118: Large-low intensive-mixed	13	1	0	4
3118: Large-low intensive-mixed	13	2	0	1
3114: Large-low intensive-sheep&goats	13	1	0	3

* For further explanation see Annex 1

5 Conclusions, further work and time investment

5.1 Overall conclusions

The overall conclusion of this report is that both the disaggregation approach for land use in the Dynaspat project and the allocation of SEAMLESS farm types are delivering good results in terms of validation. The disaggregated farm type and land use information can therefore be used to relate the farm type information to a bio-physical context and will therefore enable:

- The differentiation of farm types according to bio-physical environment within regions
- to integrate market response behaviour with environmental performance of farms
- to up-scale environmental performances of farms to farm type groups

It is clear that the usefulness of the allocated farm type information as input for modelling in FSSIM still needs to be tested. Only after this has happened the usefulness of this approach can really be confirmed and further improved. Presently the allocated farm information has been compiled at the level of farm types per Nuts2 regions and environmental zone including information on the share of the land on different soiltypes. It should be confirmed by the FSSIM modellers (T3.3) whether this is a useful way of organising the data.

This PD only presents farm results for the four prototype regions, but this work will be further extended to the rest of the EU25 (see next section). It should also be mentioned that the allocation of the land use in Dynaspat and the allocation of the farm information are closely linked. Both approaches are planned to be further improved and extended to the New Member States for Dynaspat land use and to the rest of the EU15 and the new Member States for the farm allocation. The Dynaspat land use has been produced already for EU15, but can be further improved. Any improvement in Dynaspat land use will also lead to an improvement of the farm allocation results as it is used as input for the farm allocation approach. The results presented in this PD are therefore not the final ones as further validation of both Dynaspat land use and farm allocation results will be used to further improve the allocation procedure of both land use and farm type allocation in the EU15 including the four prototype regions.

Another complicated issue is the disclosure problem of the used FADN information. When preparing the presentation of the results we have assumed that disclosure rules are not violated when the disaggregated results are presented at agri-environmental zone level even though they are not necessarily representing more than 15 farms. This assumption is based on the fact that the disaggregation results are only based on a

statistical estimation, they are therefore not real and they only provide information on the area present of a certain farmtype. This means that any attributes derived directly from the FADN data and presented for the allocated farm types will be based on a regional average (per FADN region or HARM1) and will only be disclosed when represented by 15 or more farms.

Finally it should again be stressed that although the FADN database is the only available EU wide farm information source containing individual farm information, it still has major disadvantages. These should be kept in mind when working with the allocated farm data. The major disadvantage is that the FADN sample does not include all the small farms and all the part-time farms. This means that especially the farms in the more marginal farming areas which mostly coincide with the Agri-mask 1 and 2 areas in the AEnZ, are not well represented. This also explains the low farm area allocated to these agri-mask regions. The low representation of farm area in the Agri-mask regions is further aggrevated by the exclusion of common land, seasonal lets and wintering/summering arrangements in FADN. This aspect should be further discussed in the SEAMLESS project when specific attention is paid to the High Nature Value farmland areas as these coincide strongly with the areas in agri-mask 1 and 2 and include common land use categories.

5.2 Further work and planning

Until now the spatial disaggregation of farms has only been done and validated for the four prototype regions. The disaggregation of the FSS land use in Dynaspat has been produced for EU 15. Further work still needs to be done. The description and planning of this work is given in Table 5.1.

Description of task	Planning and deadline	Involvement
Dynaspat land use allocation EU15	First allocated results have already been finalised (May 2006)	Dynaspat-partners (includes University of Bonn, Markus Kempen)
Further validation of Dynaspat land use allocation EU15	Further validation with deadline, December 2006	Dynaspat-partners and SEAMLESS partners
Finalisation of Dynaspat land use allocation EU15	December 2006	Dynaspat-partners
Extension Dynaspat land use allocation to EU10	Depending on release of data	Dynaspat-partners
Validation of Dynaspat land use allocation EU10	Depending on release of data	Dynaspat-partners and SEAMLESS partners
Farm allocation in 4 prototype regions	First allocated results have already been finalised (June 2006)	SEAMLESS partners: University Bonn Alterra

		LEI FLD
Further extension of farm allocation to EU15	Deadline February 2007	SEAMLESS partners: University Bonn Alterra LEI FLD
Further validation of farm allocation EU15	Deadline June 2007	SEAMLESS partners: University Bonn Alterra LEI FLD
Further extension of farm allocation to EU10	Depending on release of data	SEAMLESS partners: University Bonn Alterra LEI FLD
Further validation of farm allocation EU10	Depending on release of data	SEAMLESS partners: University Bonn Alterra LEI FLD

Since the Dynaspat land use is already available for the whole EU15 and the FADN input data is also available for the whole EU15, it is expected that the disaggregation of the farm type information for EU15 can be finalised by the beginning of 2007. The validation of it will then be done in the first half of 2007.

When the same disaggregation of land use and farm type information can be extended to the new Member States depends on the availability of both LUCAS and FADN information for this part of the EU. The planning of this part of the work is therefore difficult at this stage en explains the question marks in Table 5.1.

However, since both LUCAS and FADN data are presently extended to these new MS it can be expected that some disaggregation work both for land use and farms can be done in 2007.

References

Andersen, E., Verhoog, A.D., Elbersen, B.S., Godeschalk, F.E., Koole, B. (2006); A multidimensional farming system typology. SEAMLESS report no. 12, May 2006

Anselin, L., Florax, R.J.G.M., Rey, S.J. (2004): Advances in Spatial Econometrics, Springer Verlag, Berlin.

Driessen, Paul, Joseph Deckers, Otto Spaargaren and Freddy Nachtergaele (2001), Lecture Notes on the major Soils of the World. World Soil Resources Reports 94. ISSN 0532-0488. FAO

European Commission, (2003): The Lucas survey. European statisticians monitor territory. Theme 5: Agriculture and fisheries, Series Office for Official Publications of the European Communities, Luxembourg, pp. 24-40.

European Topic Centre on Terrestrial Environment (2000): Corine land cover database (Version 12/2000).

Eurostat , (2000): Manual of Concepts on Land Cover and Land Use Information Systems. Theme 5: Agriculture and Fisheries: Methods and Nomenclatures. Series Office for official Publications of the European Communities, Luxembourg, 2000, pp. 110-ff

Gallego, J. (2002): Fine scale profile of CORINE Land Cover classes with LUCAS data, in European Commission (ed.): Building Agro Environmental Indicators. Focussing on the European area frame survey LUCAS, Vol. EUR Report 20521 EN.

Food and Agriculture Organization of the United Nations (FAO), (1998) World Reference Base for Soil Resources World Soil Resources Reports 84. ISSN 1014-8531. FAO, ISRIC and ISSS

Hazeu, G.W., Elbersen, B.S, van Diepen, C.A., Metzger, M.J (2006).; Regional typologies of ecological and biophysical context SEAMLESS report no. 14, June 2006

Jones, R.J.A., Hiederer, R., Rusco, E. and Montanarella, L., 2005. Estimating organic carbon in the soils of Europe for policy support.European Journal of Soil Science, October 2005, 56, 655-671.

Kempen, M., Heckelei, Th., Britz, W., Leip, A. and Koeble, R., (2006a) (in prep.) A Statistical Approach for Spatial Disaggregation of Crop Production in the EU. University of Bonn and JRC-Ispra.

Kempen, M., Heckelei, Th., Britz, W (2006b) (in prep.), Validation of Spatially Explicit Land Use Choices Based on Probabilistic Theory. University of Bonn and JRC-Ispra.

Metzger, M.; Bunce, R.G.H.; Jongman, R.H.G; Mücher, C.A. & Watkins, J.W., 2005. A climatic stratification of the environment in Europe. In: Global Ecology and Biogeography.

Glossary

Agri-Environmental Zonation A biophysical typology based on environmental zones and soil data.

Agri-Environmental Land Types The elements of the Agri-Environmental Zonation (AEnZ)defined by the combination of Environmental Zones, Organic Carbon content and Agri_mask classes.

Agri-mask A mask indicating which areas in Europe are have no or relatively small constraints, which areas are not suitable and which areas are strongly handicapped for arable agriculture

Allocation This is a methodology that enables to add a (below regional) locational dimension to every individual farm contained in the FADN data base and every land use in the FSS database.

Enironmental Stratification A statistical environmental stratification of Europe consisting of 84 strata based on 20 most important environmental variables.

Environmental Zones An aggregation of the 84 environmental strata into 13 environmental zones.

FADN Farm Accountancy Data Network of the European Union (FADN) has been established since 1965. The aim of the network is to gather accountancy data from farms for the determination of incomes and business analysis of agricultural holdings. Based on sample farms covering information on farms in EU-15.

FADN farm One sample farm in the Farm Accountancy Data Network. FADN is based on a representative sample of all agricultural holdings. The sample covers about 60,000 holdings in EU15

Farm type A classification of farms according to different dimensions. In SEAMLESS a farm typology for the whole EU has been developed. The different dimensions of this typology are:

- Size: Measured as the economic size of farms
- Intensity: Measured as the total output in Euro per ha
- Specialisation: Measured as the standard gross margins from different types of crops and livestock
- Land use: Measured as the proportion of the agricultural area covered by specific types of crops.

To reduce the number of farm types the two last dimensions are combined in one dimension. This is possible because not all combinations of these two dimensions are relevant. In total of 189 farm types are identified. This is the aggregate of 3 size types, 3 intensity types and 21 combined specialisation/land use types.

FMU Farm Mapping Unit. FMU is a continuous region with similar soil soil conditions determining potential yields and similar altitude and LFA characteristics. FMUs are a cluster of HSMU and were created to reduce the complexity of the allocation procedure of FADN farms.

FSS Farm Structure Survey data are used to collect information on agricultural holdings in the Member States at different geographic levels (Member States, regions, districts) and over periods (follow up the changes in agricultural sector), thus provide a base for decision making in the Common Agricultural Policy. Responsible Institution at EU level is Eurostat.

HSMU Homogeneous Spatial Mapping Units are an intersection of land cover (Corine LC 2000), relief (slope in 5 classes), Soil Mapping Units (so-called soil landscapes from the *European soil map*) and the Nuts 2/3 boundaries (depending on the size of the NUTS regions) (see Figure 2.1). Each HSMU has identical values for land cover class, slope class and Soil SET, other parameters (such as annual rainfall) may differ inside the HSMU.

OCTOP The Organic Carbon content of the TOPsoil (OCTOP) (in %) calculated for every 1km2 in Europe

Appendices

Annex 1 Farm allocation results presented per agri-environmental zonation dimension for the 4 prototype regions

Explanation of codes used in tables

Farm type codes				
First digit:	Size	1	small	< 16 ESU
		2	medium	16-40 ESU
		3	large	40+ ESU
Second digit	Intensity	1	low	< 500 Euro/ha
		2	medium	500-3000 Euro/ha
		3	high	3000+ Euro/ha
Third+fourth digit	Specialisation-land use	1	Arable	Cereal
		2	Arable	Fallow
		3	Arable	Specialised crops
		4	Arable	Others
		5	Dairy cattle	Permanent grass
		6	Dairy cattle	Temporary grass
		7	Dairy cattle	Land independent
		8	Dairy cattle	Others
		9	Beef and mixed cattle	Permanent grass
		10	Beef and mixed cattle	Temporary grass
		11	Beef and mixed cattle	Land independent
		12	Beef and mixed cattle	Others
		13	Sheep & Goats	Land independent
		14	Sheep & Goats	Others

		15	Pigs	Land independent
		16	Pigs	Others
		17	Poultry and mixed Pigs & Poultry	All
		18	Mixed farms	All
		19	Mixed livestock	All
		20	Horticulture	All
		21	Permanent crops	All

ENZ: Environmental zone	
1	Alpine North (ALN),
2	Boreal (BOR),
3	Nemoral (NEM),
4	Atlantic North (ATN),
5	Alpine South (ALS),
6	Continental (CON),
7	Atlantic Central (ATC),
8	Pannonian (PAN),
9	Lusitanian (LUS),
10	Anatolian (ANA),
11	Mediterranean Mountains (MDM),
12	Mediterranean North (MDN),
13	Mediterranean South (MDS).

CTOP-CL: Topsoil Organic Carbon Content	
1	0.1-1.23 %
2	1.23-2.46%

3	2.46-3.94%
4	3.94-5.66 %
5	5.66-8.86%
6	8.86-63.0%
7	no data or 0%

Agri-Mask	
0	areas with no or relatively small constraints to agriculture,
1	areas where no arable agriculture is possible (mountainous areas above a certain altitude, depending on the latitude, and/or very steep slopes (>16%) and/or limited rooting depth (<20cm)),
2	strongly naturally handicapped areas where agriculture, if practiced, is heavily constrained and restricted to extensive farming (areas with steep slopes (>8%) and/or high alkalinity and/or salinity (>15dS/m)).

Table 1 Farm allocation results Flevoland (%/total land use)

ENZ	4	4	4 Total	7	7	7	7 Total	Grand Total
CTOP-CL	**4**	**9**		**4**	**6**	**9**		
AGRI-Mask	**0**	**0**		**0**	**0**	**0**		
Farm types:								
2201	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.01
2204	0.38	0.85	0.41	0.05	0.88	0.11	0.06	0.10
2303	1.74	0.85	1.67	2.17	0.14	2.02	2.13	2.09
3202	0.12	0.00	0.11	0.02	0.10	0.00	0.02	0.03
3203	12.34	21.75	13.04	5.88	20.57	7.08	6.16	6.83
3209	0.13	0.07	0.12	0.17	0.00	0.16	0.17	0.16
3214	1.22	2.75	1.33	0.15	2.83	0.35	0.20	0.31
3221	0.08	0.04	0.07	0.11	0.25	0.10	0.11	0.11
3301	1.54	0.82	1.48	2.10	0.03	2.00	2.06	2.00
3302	5.01	3.93	4.93	5.92	1.77	5.77	5.85	5.76
3303	44.68	40.24	44.35	47.90	51.64	46.60	47.89	47.54
3304	7.62	11.12	7.88	5.32	9.58	5.76	5.41	5.65
3305	4.71	2.49	4.54	6.37	0.11	6.07	6.26	6.09
3306	2.01	4.07	2.16	0.25	4.36	0.52	0.33	0.51
3307	0.94	0.50	0.91	1.29	0.02	1.23	1.26	1.23
3308	4.17	3.48	4.12	4.79	1.75	4.69	4.74	4.68
3313	0.02	0.01	0.02	0.01	0.06	0.14	0.02	0.02
3314	0.35	0.16	0.33	0.34	0.33	1.06	0.38	0.37
3315	0.04	0.02	0.04	0.16	4.82	0.05	0.23	0.21
3318	3.20	1.71	3.09	4.36	0.06	4.16	4.28	4.17
3320	8.35	4.27	8.05	10.94	0.42	10.38	10.76	10.49
3321	1.35	0.88	1.32	1.69	0.30	1.74	1.67	1.64
Total column	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	100.00	100.00	100.00
Grand Total %/total	**9.07**	**0.72**	**9.80**	**84.27**	**1.34**	4.60	90.20	100.00

Table 2 Farm allocation results Brandenburg (%/total land use)

ENZ	6							Grand Total
CTOP-CL	1	2	3	4	5	6	9	
AGRI-Mask	0	0	0	0	0	0	0	
Farm types:								
2101	0.00	0.42	0.15	1.97	0.66	0.15	0.13	0.74
2104	0.77	0.02	0.59	0.06	0.01	0.03	0.05	0.16
2109	0.00	0.14	0.09	0.17	0.13	1.75	0.39	0.39
2114	0.00	0.13	0.11	0.19	0.21	2.11	0.46	0.46
2118	0.00	0.26	1.53	0.19	1.27	0.30	0.81	0.62
2202	0.13	0.07	0.06	0.58	0.17	0.75	0.22	0.32
2204	0.59	0.02	0.46	0.05	0.01	0.02	0.04	0.12
2205	0.03	0.01	0.01	0.08	0.06	0.04	0.03	0.04
2214	0.00	0.02	0.01	0.03	0.02	0.29	0.07	0.06
2218	0.00	0.50	0.43	0.21	0.18	0.29	1.07	0.36
2219	0.00	0.02	0.02	0.01	0.02	0.13	0.03	0.03
2320	0.00	0.01	0.01	0.01	0.01	0.02	0.00	0.01
3101	9.12	7.47	7.05	17.63	12.38	9.34	9.82	10.79
3102	10.18	5.52	7.86	7.81	8.75	4.96	7.74	6.86
3104	8.27	0.88	1.96	3.83	2.57	2.60	3.25	2.35
3105	0.14	0.02	0.02	0.26	0.04	0.15	0.09	0.11
3109	0.59	0.59	0.48	1.56	0.65	6.33	1.86	1.73
3112	0.00	0.08	1.08	0.09	1.33	0.07	0.40	0.41
3114	0.46	0.55	0.43	1.29	0.47	4.80	1.58	1.38
3118	1.16	2.46	3.11	2.30	1.00	5.60	2.12	2.92
3201	0.89	22.12	3.96	8.88	4.27	5.66	9.09	10.34
3202	17.37	1.42	5.51	4.54	5.00	3.94	8.51	3.97
3203	0.00	0.39	0.06	0.04	0.03	0.90	0.12	0.27
3204	4.48	10.24	8.21	3.47	3.96	2.77	4.59	6.24
3205	0.46	0.41	0.40	0.90	0.90	4.07	1.17	1.15

3208	3.46	2.79	3.05	5.52	6.32	6.52	3.53	4.44
3209	0.16	0.17	0.16	0.32	0.07	0.23	0.42	0.21
3212	0.02	0.08	0.11	0.01	0.01	0.02	0.02	0.05
3214	2.54	0.08	0.01	0.02	0.00	0.00	0.80	0.04
3216	1.89	1.04	0.49	2.20	0.63	1.30	1.20	1.23
3218	30.06	37.87	46.69	31.59	42.76	31.26	33.89	37.50
3219	4.45	0.79	2.61	1.36	2.71	0.62	2.30	1.51
3221	2.14	1.28	2.31	1.67	2.41	1.92	1.84	1.81
3302	0.00	0.02	0.05	0.05	0.13	0.10	1.04	0.07
3305	0.41	0.05	0.07	0.76	0.12	0.43	0.27	0.31
3308	0.00	1.99	0.26	0.13	0.08	0.31	0.74	0.68
3315	0.23	0.01	0.02	0.16	0.01	0.09	0.08	0.07
3316	0.00	0.04	0.53	0.04	0.65	0.03	0.20	0.20
3320	0.00	0.04	0.04	0.02	0.02	0.08	0.02	0.04
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.06	25.96	22.43	26.45	8.12	15.32	1.66	100.00

Table 3a Farm allocation results Midi-Pyrenees (%/total land use)

ENZ	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CTOP-CL	1	1	1	1 Total	2	2	2	2 Total	3	3	3	3 Total	4	4	4	4 Total
AGRI-Mask	0	1	2		0	1	2		0	1	2		0	1	2	
Farm types:																
1204	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.03	0.01	0.01
2104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2109	16.17	74.19	35.60	27.29	23.12	26.24	12.17	23.94	5.94	14.73	11.63	12.34	5.87	27.89	16.99	12.10
2110	3.87	0.00	0.00	2.63	7.15	1.51	2.48	3.08	0.49	1.28	5.72	2.16	0.78	0.38	2.56	0.87
2114	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.11	0.17	0.11	0.17	0.45	0.20	0.24
2118	0.87	0.00	0.18	0.63	0.00	0.00	0.01	0.00	0.20	0.00	1.62	0.41	1.06	0.03	3.15	1.04
2201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2202	0.01	0.69	0.05	0.10	0.02	0.11	0.14	0.09	0.23	0.30	0.00	0.22	0.02	0.12	0.39	0.08
2203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2204	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2205	0.33	0.00	0.07	0.24	0.02	0.01	0.08	0.02	0.07	0.00	0.61	0.16	0.40	0.01	1.21	0.39
2206	3.15	0.00	4.13	2.94	4.66	0.00	0.01	1.22	1.62	0.11	0.06	0.39	0.65	0.17	0.64	0.54
2208	0.02	0.00	0.00	0.01	0.18	0.02	0.26	0.09	0.00	0.00	0.00	0.00	0.01	0.00	0.07	0.01
2209	7.70	0.33	17.16	8.59	7.55	0.01	4.20	2.42	77.95	23.67	44.59	38.86	13.21	0.15	14.36	10.30
2210	7.55	0.41	1.58	5.49	3.96	0.00	5.13	1.58	0.54	0.00	4.40	1.12	11.94	0.09	9.45	8.95
2212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2214	7.89	0.79	1.68	5.79	7.42	9.06	14.82	9.24	0.22	13.44	0.46	7.92	13.40	3.53	3.99	10.16
2218	0.56	0.00	0.18	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2219	0.01	0.75	0.05	0.11	0.00	0.11	0.11	0.08	0.03	0.07	0.00	0.05	0.00	0.09	0.07	0.03
2221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2310	0.02	0.00	0.00	0.01	0.16	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
2314	4.92	0.00	0.00	3.34	6.83	0.06	0.46	1.87	0.00	0.00	0.15	0.03	0.93	0.02	0.12	0.64
2317	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2321	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3101	0.16	0.00	0.03	0.12	0.00	0.00	0.01	0.00	0.04	0.00	0.31	0.08	0.20	0.01	0.60	0.20
3102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3104	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.03	0.01
3109	0.97	0.00	0.27	0.72	0.00	0.00	0.00	0.00	0.09	0.00	0.71	0.18	0.47	0.01	1.39	0.46
3110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3114	4.51	0.18	0.87	3.26	1.74	0.00	2.26	0.69	0.08	0.01	1.51	0.37	4.68	0.03	3.49	3.48
3118	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01
3201	0.29	0.20	0.07	0.23	0.04	0.13	0.40	0.13	0.12	0.08	0.53	0.19	0.45	0.15	1.27	0.46
3202	0.01	0.00	0.00	0.01	0.06	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3204	0.01	0.50	0.03	0.07	0.01	0.07	0.08	0.06	0.05	0.08	0.00	0.06	0.00	0.07	0.10	0.03
3205	0.00	0.00	0.65	0.13	0.06	8.91	1.90	5.86	0.00	0.00	0.59	0.14	0.14	3.39	1.73	1.06
3206	3.02	0.11	2.45	2.54	1.29	0.00	1.35	0.48	0.76	0.00	0.84	0.34	2.86	0.01	2.18	2.13
3208	3.44	0.20	0.72	2.51	1.94	0.00	2.51	0.77	0.21	0.00	1.69	0.43	5.52	0.03	3.73	4.07
3209	7.72	1.06	10.83	7.47	13.87	36.73	21.57	29.17	4.34	39.59	15.55	27.31	2.16	48.40	12.37	13.90
3210	7.55	0.48	1.65	5.52	4.64	0.03	5.91	1.86	0.23	0.00	1.87	0.48	11.61	0.05	4.68	8.23
3214	11.05	16.14	8.55	11.21	7.51	12.37	17.65	11.66	2.19	3.91	3.77	3.55	13.75	11.18	7.65	12.54
3218	5.21	3.79	11.15	6.17	5.92	3.74	3.73	4.31	4.12	1.49	2.62	2.25	5.96	2.01	6.40	5.09
3219	0.60	0.00	0.19	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3314	1.21	0.10	0.26	0.89	0.93	0.66	1.43	0.81	0.00	1.10	0.49	0.75	2.13	1.43	0.42	1.79
3315	0.00	0.00	0.00	0.00	0.00	0.08	0.04	0.06	0.00	0.01	0.00	0.01	0.00	0.16	0.00	0.04
3317	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3319	1.17	0.07	1.57	1.11	0.85	0.01	0.98	0.33	0.47	0.00	0.09	0.11	1.58	0.00	0.60	1.11
3320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3321	0.01	0.00	0.00	0.00	0.05	0.10	0.27	0.11	0.01	0.01	0.00	0.01	0.02	0.11	0.15	0.05
(blank)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.06	0.01	0.02	0.09	0.17	0.42	0.07	0.67	0.01	0.05	0.02	0.08	0.88	0.31	0.13	1.32

Table 3b Farm allocation results Midi-Pyrenees (%/total land use)

ENZ	5	5	5	5	5	5	5	5	5	5	5	5 Total	7	7	7 Total	9	9	9
CTOP-CL	5	5	5	5 Total	6	6	6	6 Total	9		9 Total		3	4		1	1	1 Total
AGRI-Mask	0	1	2		0	1	2		0	1			0	0		0	2	
Farm types:																		
1204	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	1.16	0.42
1318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
2101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.09	0.22
2102	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.48	0.39	3.45
2104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07
2109	3.55	30.96	13.92	21.88	13.79	10.40	12.44	12.77	0.00	20.32	19.68	15.93	27.72	27.72	27.72	0.56	0.01	0.56
2110	2.79	1.24	3.67	1.98	0.01	0.10	0.00	0.03	0.00	0.18	0.17	1.08	0.00	0.00	0.00	0.24	2.28	0.26
2114	0.01	0.09	0.04	0.06	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.08	0.00	0.00	0.00	1.62	5.28	1.66
2118	0.00	0.00	0.01	0.00	0.03	0.00	0.03	0.02	7.40	0.00	0.23	0.34	0.00	0.00	0.00	3.63	4.49	3.64
2201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.34	1.16
2202	0.00	0.13	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.05	0.00	0.00	0.00	0.05	0.00	0.05
2203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.07
2204	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	9.16	0.05	9.07
2205	0.02	0.00	0.06	0.01	0.01	0.00	0.01	0.01	2.79	0.00	0.09	0.13	0.00	0.00	0.00	0.49	0.23	0.49
2206	0.17	0.03	0.34	0.11	7.27	0.88	6.57	5.50	0.00	0.01	0.01	2.38	4.01	4.01	4.01	1.62	5.14	1.66
2208	0.07	0.00	0.20	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
2209	8.16	0.00	5.80	2.82	29.45	3.48	26.67	22.25	25.53	0.00	0.81	12.55	52.85	52.85	52.85	2.19	12.30	2.29
2210	9.26	0.00	5.57	3.04	0.87	0.00	0.87	0.64	20.12	0.00	0.64	3.63	0.00	0.00	0.00	1.58	7.64	1.64
2212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2214	15.69	4.27	13.64	8.42	1.18	15.73	2.97	5.23	0.00	12.68	12.28	7.99	0.00	0.00	0.00	3.56	4.07	3.56
2218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	2.84	0.96	2.82
2219	0.00	0.14	0.09	0.10	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.04	0.00	0.00	0.00	2.03	0.07	2.01

2221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.21
2310	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.20	0.01
2314	0.14	0.04	0.40	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.14	0.30	0.14
2317	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.04	0.13
2320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.81	0.12
2321	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.38
3101	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	1.40	0.00	0.04	0.07	0.00	0.00	0.00	0.19	0.12	0.19
3102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83	0.01	1.81
3104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.45	1.57	0.46
3109	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	3.26	0.00	0.10	0.16	0.00	0.00	0.00	0.02	0.00	0.02
3110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.20
3114	4.08	0.00	2.45	1.34	0.36	0.05	0.44	0.28	3.53	0.00	0.11	1.47	0.00	0.00	0.00	0.28	0.09	0.28
3118	0.00	0.02	0.02	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.87	0.00	0.86
3201	0.06	0.14	0.23	0.14	0.01	0.01	0.01	0.01	2.41	0.01	0.08	0.19	3.64	3.64	3.64	7.19	4.02	7.15
3202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.35	0.48	6.29
3203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	0.00	2.06
3204	0.00	0.09	0.06	0.07	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.00	0.00	0.00	14.16	2.06	14.03
3205	4.58	1.08	0.52	1.81	0.29	17.29	0.00	4.85	2.83	21.45	20.87	3.90	0.00	0.00	0.00	0.96	2.59	0.97
3206	2.52	0.00	1.62	0.84	3.55	0.40	3.23	2.68	1.97	0.00	0.06	1.81	0.00	0.00	0.00	2.14	1.77	2.13
3208	4.53	0.00	2.72	1.49	0.42	0.00	0.42	0.31	7.74	0.00	0.24	1.67	0.00	0.00	0.00	1.43	0.81	1.42
3209	4.93	39.65	18.94	28.29	19.83	30.39	22.90	22.91	0.00	28.56	27.65	21.84	0.00	0.00	0.00	4.22	2.96	4.21
3210	10.67	0.02	6.42	3.51	0.94	0.00	0.96	0.69	8.57	0.00	0.27	3.51	0.00	0.00	0.00	4.39	15.40	4.50
3214	17.99	19.01	15.43	18.20	2.45	13.16	4.43	5.48	3.26	9.30	9.11	10.32	6.09	6.09	6.09	4.36	16.61	4.48
3218	6.16	2.21	4.93	3.56	16.97	4.90	15.30	13.59	8.68	5.74	5.83	7.80	5.05	5.05	5.05	3.36	2.46	3.35
3219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.37	0.00	0.37
3221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45	0.41	2.43
3301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.26	0.75
3302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
3303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.22

3306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83	0.00	1.81
3314	2.21	0.63	1.56	1.14	0.18	0.98	0.32	0.41	0.00	1.08	1.04	1.01	0.00	0.00	0.00	0.00	0.00	0.00
3315	0.00	0.12	0.00	0.07	0.00	1.93	0.29	0.54	0.00	0.61	0.59	0.24	0.00	0.00	0.00	0.09	0.30	0.09
3317	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
3319	2.36	0.00	1.13	0.73	2.35	0.26	2.10	1.77	0.45	0.00	0.01	1.12	0.00	0.00	0.00	0.19	0.54	0.20
3320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.10	0.07
3321	0.03	0.12	0.12	0.10	0.00	0.02	0.01	0.01	0.00	0.00	0.00	0.05	0.55	0.55	0.55	3.43	1.59	3.41
(blank)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.14	0.35	0.09	0.58	1.05	0.43	0.12	1.60	0.01	0.16	0.16	4.49	0.00	0.02	0.02	4.61	0.05	4.66

Table 3c Farm allocation results Midi-Pyrenees (%/total land use)

ENZ	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9 Total	11	11	11	11
CTOP-CL	2	2	2 Total	3	3	3 Total	4	4	4 Total	5	5 Total	9	9	9 Total		1	1	1	1 Total
AGRI-Mask	0	2		0	2		0	2		0		0	2			0	1	2	
Farm types:																			
1204	1.16	1.35	1.16	0.10	0.22	0.10	0.75	4.74	0.81	3.37	3.37	0.00	0.00	0.00	0.76	0.05	0.00	0.15	0.06
1318	0.04	0.00	0.04	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
2101	0.24	0.03	0.24	0.09	0.07	0.09	0.01	0.00	0.01	0.00	0.00	0.42	0.00	0.42	0.20	0.00	0.00	0.00	0.00
2102	0.90	0.00	0.90	1.23	0.10	1.19	0.29	0.05	0.28	0.00	0.00	1.56	0.00	1.56	1.53	1.23	0.62	0.17	1.11
2104	1.88	1.21	1.87	0.46	0.01	0.44	3.68	2.56	3.66	2.21	2.21	0.00	0.00	0.00	1.22	1.45	0.02	0.82	1.36
2109	0.50	2.18	0.51	0.36	0.22	0.36	1.03	11.73	1.19	0.04	0.04	1.27	1.99	1.27	0.52	1.20	31.40	8.09	2.34
2110	1.22	0.44	1.21	1.39	2.93	1.43	2.30	0.62	2.27	0.68	0.68	0.04	0.00	0.04	1.06	3.09	2.11	1.39	2.89
2114	1.35	0.56	1.34	2.02	3.28	2.06	1.06	0.38	1.05	3.42	3.42	1.27	0.00	1.27	1.55	0.86	0.37	0.29	0.79
2118	3.32	1.77	3.31	4.43	3.93	4.42	0.96	0.07	0.94	0.04	0.04	1.82	1.25	1.82	3.52	0.96	0.01	0.15	0.87
2201	1.21	2.70	1.22	0.96	0.33	0.94	0.04	0.01	0.04	0.00	0.00	1.88	4.29	1.88	1.11	0.18	0.00	0.01	0.16
2202	0.18	0.71	0.18	0.12	0.00	0.12	0.25	2.56	0.28	1.84	1.84	0.00	0.00	0.00	0.14	0.42	0.63	0.66	0.45
2203	1.87	0.47	1.87	0.06	0.00	0.06	3.61	0.11	3.56	0.46	0.46	0.00	0.00	0.00	1.14	0.00	0.00	0.00	0.00
2204	2.82	0.59	2.80	1.41	0.02	1.37	1.17	2.17	1.19	2.18	2.18	6.13	0.00	6.12	3.93	0.40	0.07	0.17	0.37
2205	0.04	0.03	0.04	0.53	0.49	0.52	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.24	1.08	1.65	1.09	1.09
2206	1.53	0.00	1.52	4.66	5.18	4.68	0.24	1.69	0.27	0.27	0.27	1.29	0.00	1.29	2.13	7.16	2.72	4.77	6.85
2208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.06
2209	0.52	1.43	0.53	14.29	22.95	14.54	7.57	24.22	7.82	4.65	4.65	0.63	0.79	0.63	3.98	3.74	0.19	2.40	3.55
2210	0.41	0.67	0.41	5.57	10.19	5.71	1.13	1.98	1.14	3.46	3.46	0.13	0.00	0.13	1.78	7.05	5.72	5.90	6.91
2212	0.11	0.75	0.11	0.00	0.00	0.00	0.26	2.69	0.30	1.93	1.93	0.00	0.00	0.00	0.07	0.01	0.00	0.00	0.01
2214	3.75	3.26	3.75	4.64	2.10	4.57	1.78	0.43	1.76	0.07	0.07	2.90	3.93	2.90	3.79	6.71	7.51	6.39	6.69
2218	3.06	6.02	3.08	2.58	1.47	2.54	1.22	1.94	1.23	1.40	1.40	3.14	9.19	3.14	2.85	2.10	0.02	2.41	2.11
2219	1.39	5.89	1.41	1.40	0.66	1.38	0.04	0.00	0.04	0.00	0.00	3.00	9.30	3.01	1.51	1.70	0.25	2.74	1.79

2221	0.18	0.04	0.18	0.08	0.00	0.08	0.02	0.00	0.01	0.00	0.00	0.47	0.00	0.47	0.16	0.00	0.00	0.00	0.00
2310	0.00	0.00	0.00	0.01	0.03	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.00	0.02	0.08
2314	0.01	0.00	0.01	0.08	0.01	0.08	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.05	0.59	0.03	0.50	0.57
2317	0.01	0.00	0.01	0.08	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.08	0.05	0.06	0.00	0.07	0.06
2320	0.03	0.02	0.03	0.07	0.20	0.08	0.02	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00
2321	0.77	8.53	0.82	0.19	0.02	0.18	0.11	0.00	0.11	0.00	0.00	5.47	15.03	5.48	0.59	0.00	0.00	0.00	0.00
3101	0.56	0.70	0.56	1.22	0.86	1.21	0.44	2.43	0.47	1.88	1.88	0.03	0.00	0.03	0.60	0.36	0.20	0.14	0.34
3102	0.45	0.06	0.45	0.16	0.07	0.16	0.06	0.00	0.06	0.00	0.00	0.79	0.00	0.79	0.69	0.00	0.00	0.00	0.00
3104	1.94	1.99	1.94	0.67	0.29	0.66	2.33	5.70	2.38	4.23	4.23	0.48	0.00	0.48	1.35	0.28	0.06	0.22	0.27
3109	0.00	0.00	0.00	0.37	0.54	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	1.82	0.00	2.02	1.82
3110	0.32	0.41	0.32	0.07	0.00	0.07	0.17	1.47	0.19	1.05	1.05	0.29	0.00	0.29	0.24	0.01	0.00	0.06	0.01
3114	1.86	4.02	1.88	1.65	1.00	1.63	0.23	0.00	0.23	11.87	11.87	0.09	0.00	0.09	1.41	2.67	6.51	6.73	3.15
3118	3.23	0.65	3.22	0.26	0.00	0.25	5.11	0.15	5.03	0.64	0.64	0.72	0.00	0.72	2.12	0.01	0.01	0.13	0.02
3201	12.52	14.30	12.53	6.05	5.31	6.03	17.09	16.60	17.09	18.29	18.29	10.95	14.23	10.95	10.14	4.78	0.70	2.53	4.49
3202	7.25	2.36	7.22	2.37	0.32	2.31	6.41	3.32	6.36	3.80	3.80	7.98	0.99	7.98	6.00	1.52	0.23	1.35	1.49
3203	3.69	1.29	3.68	0.66	0.00	0.64	6.47	0.12	6.38	2.79	2.79	2.30	1.34	2.30	2.78	0.00	0.00	0.00	0.00
3204	6.55	0.89	6.51	2.63	1.17	2.59	4.25	1.56	4.21	4.69	4.69	9.45	0.25	9.44	7.41	2.94	0.23	1.56	2.76
3205	0.50	0.71	0.50	1.11	2.39	1.15	1.00	0.39	0.99	0.04	0.04	0.24	0.34	0.24	0.75	0.80	0.92	0.38	0.76
3206	0.05	0.00	0.05	1.53	1.18	1.52	0.01	0.00	0.01	0.00	0.00	0.12	0.00	0.12	0.82	6.71	0.10	5.82	6.52
3208	1.31	0.36	1.31	2.05	2.68	2.07	0.11	0.00	0.11	4.28	4.28	0.88	0.00	0.88	1.45	0.79	0.00	0.20	0.72
3209	0.27	0.21	0.27	2.44	1.55	2.42	0.02	0.00	0.02	1.50	1.50	0.21	0.00	0.21	1.61	8.92	7.80	7.34	8.74
3210	4.76	5.07	4.77	6.24	9.56	6.33	4.75	0.75	4.69	1.46	1.46	2.87	0.00	2.86	5.00	5.03	0.04	3.11	4.76
3214	7.81	4.28	7.79	8.83	11.14	8.89	8.05	3.62	7.98	6.11	6.11	2.98	2.84	2.98	7.22	12.14	16.95	19.66	13.00
3218	8.06	10.17	8.07	8.68	5.62	8.59	11.62	3.39	11.50	9.32	9.32	8.79	13.57	8.80	7.20	6.70	5.49	5.09	6.51
3219	1.62	0.06	1.61	2.01	0.02	1.95	0.01	0.00	0.01	0.00	0.00	0.05	0.00	0.05	1.33	0.97	0.00	1.68	1.03
3221	2.76	6.75	2.79	0.65	0.22	0.64	2.29	1.21	2.28	1.07	1.07	6.47	10.33	6.47	2.28	0.03	0.00	0.00	0.03
3301	0.45	0.13	0.44	0.31	0.25	0.31	0.07	0.01	0.07	0.00	0.00	0.59	0.00	0.59	0.47	0.00	0.00	0.00	0.00
3302	0.28	0.00	0.28	0.02	0.00	0.02	0.16	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00

3303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3304	0.35	0.00	0.34	0.12	0.00	0.12	0.12	0.00	0.12	0.00	0.00	0.33	0.00	0.33	0.26	0.00	0.00	0.00	0.00
3306	1.51	0.00	1.50	1.10	0.00	1.07	0.14	0.00	0.14	0.00	0.00	3.15	0.00	3.14	1.44	0.00	0.00	0.00	0.00
3314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.04	0.02
3315	0.07	0.00	0.07	0.27	0.31	0.27	0.01	0.00	0.01	0.00	0.00	0.76	0.00	0.76	0.12	1.10	1.19	0.81	1.07
3317	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05
3318	0.04	0.00	0.04	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.04	0.03	0.00	0.00	0.03
3319	0.30	0.20	0.29	0.45	0.74	0.46	0.03	0.00	0.03	0.00	0.00	0.18	0.00	0.18	0.30	2.00	3.65	2.86	2.11
3320	0.07	0.29	0.07	0.05	0.04	0.05	0.05	0.00	0.05	0.00	0.00	0.16	0.49	0.16	0.07	0.00	0.00	0.00	0.00
3321	2.92	6.44	2.94	1.18	0.32	1.15	1.43	1.30	1.43	0.95	0.95	7.53	9.85	7.53	2.66	0.11	2.57	0.11	0.14
(blank)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	10.55	0.06	10.61	3.88	0.12	3.99	0.66	0.01	0.67	0.03	0.03	0.10	0.00	0.10	20.06	3.52	0.05	0.42	3.99

Table 3d Farm allocation results Midi-Pyrenees (%/total land use)

ENZ	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
CTOP-CL	2	2	2	2 Total	3	3	3	3 Total	4	4	4	4 Total	5	5	5	5 Total
AGRI-Mask	0	1	2		0	1	2		0	1	2		0	1	2	
Farm types:																
1204	0.03	0.14	0.02	0.03	0.01	0.06	0.03	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
1318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2102	0.24	0.42	0.34	0.26	1.99	0.76	0.83	1.84	0.68	0.06	0.17	0.57	0.08	0.01	0.04	0.03
2104	0.67	0.61	0.52	0.65	1.00	0.24	0.46	0.93	0.31	0.00	0.06	0.25	0.00	0.00	0.00	0.00
2109	1.43	20.01	5.08	2.55	1.31	22.65	6.48	2.20	4.86	33.01	13.82	7.73	10.36	37.41	37.85	31.00
2110	3.04	4.15	3.38	3.12	4.16	2.40	3.50	4.06	4.57	1.97	3.28	4.23	0.50	1.72	0.32	1.15
2114	0.47	0.84	0.83	0.53	0.98	9.07	2.46	1.26	1.45	0.76	0.82	1.31	0.01	0.19	0.09	0.13
2118	0.16	0.04	0.06	0.14	1.26	0.29	1.40	1.26	2.25	0.21	2.14	2.12	0.81	0.00	0.02	0.20
2201	0.13	0.00	0.00	0.11	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.02	0.15	0.00	0.00	0.04
2202	0.82	0.49	0.69	0.79	0.49	0.96	1.09	0.56	0.12	0.43	0.24	0.15	6.04	0.12	0.14	1.54
2203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2204	0.12	0.11	0.04	0.11	0.48	0.08	0.25	0.45	0.22	0.17	0.18	0.21	0.85	0.01	0.03	0.21
2205	0.72	0.60	0.55	0.69	0.41	0.55	0.71	0.44	0.84	0.33	1.38	0.90	0.27	0.21	0.16	0.21
2206	5.69	2.11	4.12	5.35	6.30	4.73	7.70	6.43	6.75	0.43	2.05	5.69	5.32	0.07	0.14	1.34
2208	0.08	0.42	0.09	0.09	0.02	0.14	0.00	0.02	0.08	0.09	0.12	0.09	0.00	0.05	0.00	0.03
2209	2.25	1.47	1.83	2.17	3.61	1.09	6.40	3.89	9.71	0.81	10.04	9.29	7.77	0.00	0.03	1.87
2210	8.31	2.54	5.53	7.73	14.04	2.57	11.06	13.54	10.29	0.56	8.07	9.43	0.48	0.00	0.00	0.12
2212	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2214	7.32	7.16	8.20	7.44	4.97	2.53	3.10	4.73	5.62	4.86	7.29	5.84	13.05	8.36	9.42	9.70
2218	2.66	0.35	2.34	2.54	1.10	0.17	1.20	1.10	1.45	0.00	0.53	1.23	0.64	0.00	0.00	0.15
2219	0.95	0.58	1.29	0.99	2.13	1.41	1.31	2.03	0.70	0.59	0.45	0.65	0.11	0.24	0.12	0.18
2221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2310	0.37	0.00	0.28	0.34	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2314	0.35	0.12	0.26	0.33	0.08	0.09	0.02	0.07	0.46	0.08	0.23	0.41	0.73	0.16	0.05	0.28
2317	0.04	0.00	0.04	0.04	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.05	0.00	0.00	0.01
2320	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.02
2321	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3101	0.19	0.50	0.18	0.20	0.41	0.06	0.37	0.40	0.41	0.12	0.59	0.42	0.53	0.00	0.16	0.16
3102	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3104	0.12	0.13	0.16	0.13	0.42	0.04	0.24	0.39	0.16	0.00	0.09	0.14	0.00	0.00	0.00	0.00
3109	2.54	0.18	2.54	2.46	0.27	0.05	0.57	0.30	0.51	0.09	1.29	0.61	0.00	0.00	0.00	0.00
3110	0.06	0.03	0.09	0.06	0.02	0.01	0.03	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
3114	6.89	5.12	7.53	6.92	2.54	3.91	4.64	2.80	1.41	1.00	2.81	1.60	1.90	0.49	0.94	0.92
3118	0.12	0.11	0.20	0.13	0.05	0.06	0.06	0.05	0.01	0.15	0.01	0.02	0.00	0.01	0.28	0.06
3201	1.86	2.04	1.53	1.82	3.79	1.76	3.26	3.70	5.33	0.56	1.72	4.52	6.61	0.20	0.39	1.78
3202	0.87	0.94	0.70	0.85	1.91	0.58	1.08	1.80	0.81	0.13	0.34	0.70	0.66	0.08	0.09	0.23
3203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3204	1.14	0.77	1.11	1.12	1.20	1.02	1.70	1.26	1.32	0.41	0.53	1.15	4.97	0.11	0.07	1.27
3205	1.24	0.34	0.54	1.11	1.60	0.21	1.05	1.52	1.61	0.00	0.17	1.31	0.00	0.00	0.00	0.00
3206	6.59	0.53	5.23	6.20	4.59	0.43	2.52	4.29	2.62	0.16	2.11	2.41	1.15	0.00	0.00	0.28
3208	0.60	0.00	0.61	0.59	1.03	0.22	1.26	1.05	2.25	0.22	2.32	2.15	0.12	0.00	0.00	0.03
3209	3.41	18.40	4.18	4.01	1.98	20.56	3.16	2.37	3.77	35.68	10.50	6.49	11.78	32.84	28.50	26.92
3210	3.07	0.53	2.13	2.85	3.45	0.74	3.07	3.37	6.94	0.37	3.61	6.08	1.08	0.00	0.07	0.28
3214	23.04	20.65	25.52	23.30	19.76	11.96	17.91	19.44	13.82	12.24	13.63	13.71	15.96	14.85	14.86	15.12
3218	6.54	4.72	5.87	6.39	10.33	3.42	7.51	9.91	6.20	3.34	6.80	6.14	6.23	2.31	2.78	3.34
3219	2.35	0.17	1.69	2.19	0.06	0.00	0.04	0.06	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00
3221	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3304	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.02
3306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3314	0.00	0.21	0.01	0.01	0.01	0.54	0.06	0.02	0.21	0.82	0.25	0.25	0.11	0.43	0.43	0.35
3315	0.23	0.42	0.43	0.27	0.29	1.06	0.43	0.31	0.64	0.05	0.28	0.55	0.00	0.00	0.99	0.20
3317	0.04	0.05	0.00	0.04	0.00	0.00	0.02	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00
3318	0.05	0.00	0.04	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.08
3319	3.05	1.08	3.89	3.10	1.80	2.23	2.87	1.93	1.44	0.13	1.95	1.45	0.01	0.02	0.00	0.02
3320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.13	0.00	0.01	0.03
3321	0.12	0.92	0.31	0.17	0.12	1.34	0.10	0.13	0.08	0.18	0.08	0.08	1.05	0.09	2.02	0.71
(blank)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	5.74	0.23	0.96	6.93	8.97	0.14	1.17	10.28	5.09	0.34	0.99	6.43	0.08	0.18	0.06	0.32

Table 3e Farm allocation results Midi-Pyrenees (%/total land use)

ENZ	11	11	11	11	11	11	11	11	11 Total	12	12	12	12	12	12	12	12	12
CTOP-CL	6	6	6	6 Total	9	9	9	9 Total		1	1	1 Total	2		2 Total	3		3 Total
AGRI-Mask	0	1	2		0	1	2			0	2		0	2		0	2	
Farm types:																		
1204	0.00	0.00	0.00	0.00	0.01	0.00	0.24	0.07	0.03	1.97	0.00	1.97	8.84	0.94	8.82	1.12	0.00	1.12
1318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.13	0.00	0.13	0.58	0.00	0.58
2101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	1.25	0.32	0.00	0.32	0.63	0.00	0.62
2102	0.00	0.04	0.00	0.01	0.11	0.00	0.02	0.08	1.03	5.83	6.26	5.83	3.86	0.72	3.85	4.60	0.00	4.59
2104	0.00	0.00	0.00	0.00	0.08	0.00	0.79	0.25	0.75	1.40	0.00	1.40	2.07	4.02	2.07	2.05	0.00	2.05
2109	7.30	0.00	15.79	6.69	1.07	33.51	24.11	9.32	3.93	0.12	0.00	0.12	0.03	0.00	0.03	0.66	1.32	0.67
2110	7.02	0.00	0.00	3.80	1.04	0.01	7.90	2.73	3.66	0.39	0.00	0.39	0.53	0.11	0.53	0.36	0.00	0.35
2114	0.00	0.00	0.00	0.00	0.33	0.07	0.70	0.40	1.01	0.42	0.00	0.42	0.43	8.13	0.45	0.97	0.00	0.97
2118	0.02	0.03	0.00	0.02	0.55	0.00	1.06	0.64	1.11	1.37	0.00	1.37	0.62	0.01	0.62	0.75	0.00	0.74
2201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	1.20	0.00	1.20	1.63	0.71	1.63	1.62	0.00	1.61
2202	0.00	0.00	0.00	0.00	0.10	0.07	1.03	0.34	0.52	2.01	0.00	2.01	3.39	7.99	3.40	2.93	3.62	2.93
2203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.74	0.29	0.00	0.29	0.42	0.00	0.42
2204	0.00	0.00	0.00	0.00	0.01	0.00	0.16	0.04	0.29	4.69	6.36	4.69	5.10	1.81	5.09	4.76	0.00	4.75
2205	0.00	0.00	0.00	0.00	0.06	0.00	0.73	0.23	0.70	0.22	0.00	0.22	0.43	0.00	0.43	0.38	0.00	0.38
2206	7.48	0.00	5.39	4.99	1.98	0.03	6.18	2.91	5.98	0.30	0.04	0.30	1.06	6.03	1.07	1.53	32.53	1.59

2208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.33	0.00	0.33	0.05	0.04	0.05	0.43	0.00	0.43
2209	13.23	0.00	21.89	10.97	1.54	0.00	4.29	2.13	4.63	0.20	0.00	0.20	0.83	5.82	0.84	0.68	22.89	0.72
2210	16.02	0.00	0.76	8.81	15.07	0.00	8.59	12.32	10.06	2.56	0.00	2.56	1.05	0.41	1.05	1.35	0.00	1.35
2212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.66	0.54	0.66	0.05	0.00	0.05
2214	1.61	10.00	1.69	4.01	9.05	0.00	5.53	7.50	5.99	1.02	2.21	1.02	0.82	5.39	0.83	1.73	0.00	1.73
2218	0.00	0.00	0.00	0.00	0.85	0.00	1.36	0.92	1.61	3.02	0.00	3.01	2.84	5.33	2.84	1.35	0.00	1.35
2219	0.00	0.00	0.00	0.00	0.10	0.07	0.14	0.11	1.39	0.38	0.14	0.38	0.14	1.38	0.14	2.38	0.00	2.37
2221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.15	0.02	0.00	0.02	0.03	0.00	0.03
2310	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.05	0.10	0.13	0.00	0.13	0.09	1.17	0.09	0.06	0.00	0.06
2314	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.12	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2317	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.03	0.01	0.00	0.01	0.01	0.03	0.01	0.01	0.00	0.01
2320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.12	0.06	0.00	0.06	0.05	0.00	0.05
2321	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.35	0.10	0.00	0.10	0.19	0.00	0.19
3101	0.00	0.00	0.00	0.00	0.04	0.00	0.27	0.10	0.34	0.96	0.00	0.96	2.25	1.07	2.24	1.57	0.00	1.57
3102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45	0.00	2.45	3.64	0.00	3.63	1.72	0.00	1.72
3104	0.04	0.00	0.00	0.02	0.12	0.00	0.20	0.13	0.25	0.76	0.00	0.76	3.55	1.82	3.55	2.59	0.00	2.58
3109	0.00	0.00	0.00	0.00	0.06	0.00	0.05	0.06	1.12	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
3110	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.03	0.18	0.00	0.18	0.78	1.01	0.78	0.30	0.00	0.30
3114	3.79	1.08	0.38	2.42	1.69	0.00	0.66	1.30	3.57	0.52	0.07	0.52	0.47	3.36	0.48	2.11	18.47	2.15
3118	0.00	0.26	0.01	0.08	0.02	0.00	0.01	0.02	0.06	0.54	0.00	0.54	1.23	1.58	1.23	0.44	0.00	0.44
3201	0.02	0.00	0.00	0.01	1.29	0.04	4.28	1.96	3.50	21.41	19.63	21.41	17.86	15.68	17.86	14.20	3.07	14.17
3202	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.07	1.24	5.86	8.81	5.86	6.12	3.29	6.12	7.74	2.05	7.73

3203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.16	0.08	0.00	0.08	0.08	0.00	0.08
3204	0.00	0.00	0.00	0.00	0.41	0.05	1.35	0.62	1.41	21.49	41.30	21.50	14.37	5.21	14.35	12.83	5.72	12.82
3205	3.08	0.00	0.00	1.67	6.10	0.00	0.74	4.29	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3206	1.53	0.00	2.67	1.29	6.49	0.00	2.87	5.10	4.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3208	0.00	0.00	0.37	0.06	0.83	0.00	0.80	0.76	1.13	1.46	0.00	1.46	0.50	0.19	0.50	1.51	0.00	1.51
3209	14.44	61.90	32.37	31.07	0.55	49.67	7.17	5.80	4.95	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
3210	0.00	0.00	0.88	0.15	2.44	0.00	4.46	2.78	4.02	1.20	0.14	1.20	0.95	0.12	0.95	1.56	0.00	1.56
3214	7.35	23.66	3.12	11.26	35.53	13.38	9.98	27.38	18.13	3.20	5.39	3.20	4.38	12.21	4.40	5.35	0.01	5.34
3218	12.68	0.32	12.64	9.15	10.72	1.83	2.73	8.03	7.61	4.76	2.17	4.76	4.10	3.27	4.10	11.79	10.33	11.79
3219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.05	0.00	0.05	0.42	0.00	0.42	0.06	0.00	0.06
3221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.89	6.50	1.89	0.62	0.40	0.62	0.69	0.00	0.69
3301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.01
3302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00
3303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.40	0.00	0.40	0.28	0.00	0.28
3304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.26	0.00	0.26	0.06	0.00	0.06
3306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3314	0.02	1.55	0.27	0.50	0.19	1.25	0.03	0.22	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3315	0.00	1.02	0.04	0.30	0.09	0.00	0.22	0.12	0.46	0.32	0.03	0.32	0.30	0.00	0.30	1.08	0.00	1.08
3317	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.20	0.00	0.20	0.20	0.00	0.20	0.46	0.00	0.46
3318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.31	0.52	0.31	0.60	0.00	0.60	0.27	0.00	0.27
3319	4.31	0.00	1.74	2.64	1.26	0.00	0.56	0.99	2.11	0.02	0.00	0.02	0.08	0.00	0.08	0.25	0.00	0.25
3320	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02

3321	0.06	0.13	0.01	0.07	0.03	0.03	0.27	0.09	0.14	1.85	0.42	1.85	1.42	0.20	1.42	1.37	0.00	1.37
(blank)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.02	0.01	0.01	0.04	0.06	0.01	0.02	0.09	28.07	14.61	0.00	14.61	27.60	0.06	27.66	3.84	0.01	3.85

Table 3f Farm allocation results Midi-Pyrenees (%/total land use)

ENZ	12	12	12	12	12	12	12	12 Total	Grand Total
CTOP-CL	4	4 Total	5		5 Total	9	9 Total		
AGRI-Mask	0		0	2		0			
Farm types:									
1204	8.49	8.49	5.18	1.73	5.09	2.85	2.85	6.04	3.02
1318	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.13	0.07
2101	0.12	0.12	0.14	0.00	0.14	0.50	0.50	0.63	0.34
2102	2.94	2.94	2.73	1.12	2.69	3.57	3.57	4.50	2.73
2104	2.06	2.06	1.00	0.52	0.98	1.67	1.67	1.86	1.34
2109	0.10	0.10	0.00	0.33	0.01	0.00	0.00	0.11	1.98
2110	0.57	0.57	0.04	0.00	0.04	0.06	0.06	0.47	1.51
2114	0.17	0.17	0.03	0.00	0.03	0.61	0.61	0.47	0.82
2118	0.65	0.65	0.14	0.00	0.14	0.68	0.68	0.86	1.44
2201	1.58	1.58	1.67	0.77	1.65	0.56	0.56	1.49	0.95
2202	3.45	3.45	7.50	3.39	7.39	1.83	1.83	2.95	1.57
2203	0.49	0.49	0.19	0.06	0.19	0.14	0.14	0.44	0.44
2204	4.63	4.63	2.52	0.19	2.46	2.36	2.36	4.91	3.20
2205	1.33	1.33	3.47	5.82	3.53	0.26	0.26	0.39	0.44
2206	0.37	0.37	0.08	17.91	0.55	0.96	0.96	0.86	2.62
2208	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.17	0.10
2209	2.02	2.02	1.72	13.47	2.03	0.00	0.00	0.66	2.98
2210	1.13	1.13	0.33	0.00	0.33	0.47	0.47	1.54	4.07
2212	1.10	1.10	0.00	0.00	0.00	0.00	0.00	0.43	0.22
2214	1.37	1.37	0.45	0.00	0.44	0.64	0.64	0.97	3.26
2218	2.64	2.64	2.10	0.03	2.04	2.29	2.29	2.77	2.34
2219	0.01	0.01	0.05	0.00	0.05	0.80	0.80	0.40	0.88
2221	0.02	0.02	0.00	0.00	0.00	0.38	0.38	0.07	0.06

2310	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.08
2314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
2317	0.00	0.00	0.07	0.00	0.07	0.00	0.00	0.01	0.02
2320	0.03	0.03	0.04	0.00	0.04	0.12	0.12	0.08	0.05
2321	0.03	0.03	0.05	0.00	0.05	0.07	0.07	0.18	0.21
3101	2.78	2.78	1.70	0.34	1.67	4.09	4.09	1.80	1.07
3102	2.82	2.82	2.60	1.07	2.56	1.81	1.81	3.09	1.60
3104	3.15	3.15	0.27	0.00	0.27	0.56	0.56	2.58	1.56
3109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34
3110	0.64	0.64	0.00	0.00	0.00	0.11	0.11	0.55	0.32
3114	0.85	0.85	0.34	10.17	0.59	0.13	0.13	0.63	1.65
3118	1.68	1.68	2.67	4.03	2.70	0.69	0.69	0.96	0.90
3201	18.15	18.15	15.94	4.35	15.64	24.44	24.44	18.66	11.87
3202	4.42	4.42	3.33	2.60	3.31	10.35	10.35	6.13	4.46
3203	0.32	0.32	0.00	0.00	0.00	0.12	0.12	0.11	0.61
3204	9.97	9.97	15.88	4.99	15.60	16.41	16.41	16.36	9.63
3205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
3206	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
3208	0.15	0.15	0.73	0.00	0.71	2.69	2.69	0.88	1.10
3209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.69
3210	1.31	1.31	3.06	3.85	3.09	0.72	0.72	1.10	2.81
3214	5.93	5.93	12.70	15.66	12.78	5.97	5.97	4.18	8.98
3218	8.16	8.16	4.66	6.23	4.70	7.14	7.14	5.01	6.31
3219	0.39	0.39	0.52	0.27	0.51	0.15	0.15	0.27	0.60
3221	0.72	0.72	0.34	0.00	0.34	1.29	1.29	1.02	0.94
3301	0.00	0.00	0.25	0.00	0.24	0.00	0.00	0.01	0.10
3302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04
3303	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.28	0.13
3304	0.18	0.18	0.35	0.00	0.34	0.08	0.08	0.17	0.14
3306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29

3314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
3315	0.81	0.81	1.90	0.93	1.88	0.05	0.05	0.39	0.35
3317	0.11	0.11	0.03	0.00	0.03	0.61	0.61	0.22	0.11
3318	0.70	0.70	1.79	0.19	1.75	0.41	0.41	0.49	0.24
3319	0.05	0.05	0.25	0.00	0.24	0.00	0.00	0.07	0.74
3320	0.01	0.01	0.01	0.00	0.01	0.11	0.11	0.01	0.02
3321	1.11	1.11	1.16	0.00	1.13	1.27	1.27	1.54	1.31
(blank)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0.90	0.90	0.23	0.01	0.24	0.10	0.10	47.36	100.00

Table 4a Farm allocation results Andalucia (%/total land use)

ENZ	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
CTOP-CL	1	1	1	1 Total	2	2	2	2 Total	3	3	3	3 Total	4	4	4	4 Total
AGRI-Mask	0	1	2		0	1	2		0	1	2		0	1	2	
Farm types:																
1101	0.02	0.03	0.04	0.02	0.01	0.02	0.03	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00
1102	5.69	3.44	2.56	4.81	4.00	1.84	2.69	3.38	7.41	3.73	4.51	5.86	9.66	5.99	8.86	8.05
1104	0.41	0.10	0.23	0.35	2.42	0.17	0.96	1.75	1.28	0.15	1.52	1.15	4.68	0.01	2.22	2.28
1114	0.16	0.23	0.04	0.14	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.10	0.47	0.90	0.32	0.33	1.68	1.33	0.76	0.37	2.40	1.88	1.20	0.19	0.50	0.78	0.46
1119	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1201	0.65	0.29	0.86	0.68	0.47	0.38	0.28	0.41	0.57	0.62	0.18	0.46	0.01	0.12	0.00	0.05
1202	0.07	0.05	0.06	0.07	0.04	0.04	0.03	0.04	0.02	0.02	0.04	0.03	0.00	0.00	0.01	0.00
1203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
1204	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1214	0.17	0.24	0.21	0.18	0.25	0.56	0.53	0.36	0.25	0.89	0.80	0.53	0.05	0.16	0.37	0.17
1218	0.07	0.62	0.38	0.18	0.23	0.50	0.81	0.42	0.52	0.05	0.28	0.36	0.04	0.01	0.10	0.04
1219	0.06	0.11	0.04	0.06	0.02	0.03	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02
1221	13.27	5.42	10.87	12.23	14.01	3.72	7.05	10.87	11.28	7.65	8.28	9.70	2.55	4.10	4.21	3.56
1301	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00
1303	0.01	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1304	0.03	0.00	0.01	0.02	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
1307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1313	0.01	0.06	0.02	0.01	0.02	0.06	0.07	0.04	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
1314	0.05	0.38	0.16	0.10	0.15	0.43	0.46	0.27	0.11	0.03	0.04	0.07	0.00	0.01	0.00	0.01
1316	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1320	0.22	0.22	0.22	0.22	0.19	0.21	0.08	0.17	0.31	0.18	0.19	0.25	0.04	0.01	0.04	0.03
1321	0.72	1.87	1.05	0.87	1.09	1.81	2.10	1.44	1.15	0.43	1.15	1.02	1.25	0.61	0.91	0.92
2101	0.01	0.05	0.03	0.02	0.01	0.03	0.05	0.02	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00
2102	5.68	4.80	3.43	5.09	5.80	4.47	4.39	5.26	13.84	6.84	11.44	11.84	24.95	15.65	20.16	20.19
2104	0.08	0.00	0.05	0.07	0.04	0.01	0.01	0.03	0.04	0.07	0.01	0.04	0.00	0.01	0.03	0.01
2105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2109	2.27	1.91	2.70	2.35	1.52	1.16	1.27	1.41	0.71	0.36	0.75	0.66	0.00	0.00	0.02	0.01
2114	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.01	0.00	0.01	0.04	0.02	0.00	0.01	0.01	0.00
2118	1.99	6.08	6.31	3.26	6.47	11.59	12.71	8.73	5.07	6.66	4.94	5.32	0.74	1.30	1.51	1.15
2119	0.22	0.14	0.75	0.34	1.77	0.91	2.24	1.77	0.00	0.00	0.65	0.20	0.00	0.00	0.00	0.00
2120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2121	3.64	4.16	2.92	3.50	2.31	4.45	1.77	2.45	2.85	4.92	3.53	3.43	6.26	9.68	7.13	7.79
2201	0.16	0.15	0.22	0.17	0.14	0.06	0.08	0.12	0.19	0.07	0.02	0.12	0.00	0.00	0.00	0.00
2202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2203	0.15	0.05	0.13	0.14	0.19	0.00	0.05	0.13	0.16	0.02	0.04	0.10	0.00	0.00	0.00	0.00
2204	0.05	0.07	0.09	0.06	0.09	0.03	0.05	0.07	0.03	0.01	0.02	0.02	0.00	0.00	0.00	0.00
2205	0.03	0.02	0.02	0.03	0.02	0.00	0.01	0.01	0.03	0.00	0.01	0.02	0.00	0.00	0.00	0.00

2214	0.43	0.78	0.71	0.52	0.46	1.99	1.80	1.01	0.32	1.04	0.29	0.44	0.00	0.11	0.11	0.07
2216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2218	0.26	0.32	0.42	0.30	0.12	0.17	0.13	0.13	0.08	0.05	0.14	0.09	0.00	0.00	0.09	0.02
2219	0.01	0.10	0.05	0.02	0.12	0.16	0.37	0.19	0.00	0.01	0.03	0.01	0.00	0.00	0.11	0.03
2220	0.00	0.00	0.03	0.01	0.10	0.19	0.10	0.11	0.02	0.06	0.01	0.03	0.00	0.00	0.00	0.00
2221	13.51	32.17	18.30	15.76	13.63	29.27	23.37	18.18	20.22	35.95	28.26	25.53	40.06	56.36	39.61	46.21
2303	0.07	0.03	0.08	0.07	0.07	0.04	0.04	0.06	0.05	0.01	0.02	0.03	0.00	0.00	0.00	0.00
2304	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2305	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2307	0.02	0.11	0.05	0.04	0.06	0.12	0.13	0.08	0.09	0.02	0.07	0.07	0.00	0.00	0.00	0.00
2313	0.04	0.23	0.10	0.06	0.10	0.29	0.28	0.17	0.06	0.02	0.02	0.04	0.00	0.01	0.00	0.00
2314	0.07	0.03	0.06	0.06	0.20	0.05	0.25	0.20	0.52	0.09	0.40	0.40	0.02	0.00	0.00	0.01
2318	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
2319	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2320	0.66	0.55	0.58	0.64	0.46	0.09	0.10	0.32	0.49	0.24	0.27	0.38	0.03	0.01	0.00	0.02
2321	0.32	0.13	0.25	0.29	0.28	0.09	0.11	0.21	0.34	0.14	0.17	0.25	0.02	0.00	0.00	0.01
3101	5.61	4.37	6.49	5.75	2.77	3.87	2.97	2.97	1.88	1.43	3.04	2.15	0.00	0.00	0.12	0.03
3102	0.31	0.00	0.17	0.26	3.54	0.05	0.43	2.29	1.56	0.52	0.59	1.08	0.00	0.05	0.06	0.03
3104	4.49	2.98	2.38	3.90	3.59	0.79	1.42	2.67	3.73	1.65	1.74	2.75	2.35	0.02	1.88	1.33
3105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3109	1.08	0.73	1.23	1.10	0.57	0.75	0.36	0.54	0.31	0.73	0.39	0.41	0.22	0.00	0.01	0.09
3114	1.26	2.86	1.87	1.50	1.53	7.82	5.67	3.42	1.38	5.27	2.30	2.37	0.05	0.60	0.78	0.44

3118	0.53	0.06	1.00	0.61	0.18	0.04	0.35	0.21	0.03	0.79	0.14	0.20	0.00	0.00	0.32	0.08
3119	0.11	0.18	0.19	0.13	0.08	0.20	0.05	0.09	0.05	0.30	0.05	0.10	0.07	0.01	0.04	0.04
3121	1.57	2.47	2.58	1.86	2.29	3.42	3.69	2.80	2.06	3.16	1.96	2.23	0.32	1.00	1.10	0.78
3201	0.21	0.01	0.17	0.19	0.22	0.00	0.03	0.15	0.15	0.00	0.00	0.08	0.00	0.00	0.00	0.00
3202	0.29	0.01	0.19	0.25	0.34	0.00	0.02	0.21	0.24	0.00	0.00	0.12	0.00	0.00	0.00	0.00
3203	0.02	0.01	0.02	0.02	0.01	0.01	0.02	0.01	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00
3204	0.06	0.00	0.03	0.05	0.01	0.04	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3205	0.05	0.03	0.05	0.05	0.12	0.00	0.07	0.09	0.64	0.11	0.49	0.50	0.03	0.00	0.00	0.01
3208	0.02	0.01	0.04	0.02	0.08	0.01	0.05	0.06	0.02	0.01	0.02	0.02	0.00	0.00	0.01	0.00
3209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3214	0.63	0.54	0.74	0.65	0.34	0.46	0.37	0.37	0.32	0.19	0.42	0.33	0.01	0.00	0.06	0.02
3216	0.30	1.09	0.13	0.31	0.31	1.05	0.38	0.43	1.38	0.67	1.43	1.27	0.86	0.00	2.42	0.92
3218	5.31	4.35	6.51	5.54	2.65	4.48	3.49	3.10	1.79	1.90	2.90	2.15	0.00	0.09	0.24	0.09
3219	1.49	0.95	1.77	1.52	0.84	0.95	1.15	0.93	0.34	0.31	0.86	0.50	0.00	0.00	0.02	0.01
3220	0.07	0.00	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3221	24.40	13.28	18.51	22.34	22.56	8.04	12.58	18.09	14.64	9.66	13.03	13.24	5.41	3.48	6.61	4.97
3303	0.31	0.04	0.38	0.31	0.22	0.09	0.16	0.19	0.33	0.17	0.14	0.24	0.02	0.00	0.00	0.01
3305	0.03	0.23	0.10	0.06	0.09	0.38	0.28	0.18	0.05	0.02	0.02	0.04	0.00	0.01	0.00	0.00
3307	0.04	0.05	0.04	0.04	0.04	0.08	0.03	0.04	0.13	0.04	0.12	0.11	0.01	0.00	0.00	0.00
3308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3315	0.01	0.00	0.00	0.01	0.00	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3316	0.04	0.26	0.11	0.07	0.10	0.30	0.32	0.18	0.05	0.02	0.02	0.03	0.00	0.01	0.00	0.00
3317	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3319	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3320	0.08	0.03	0.07	0.07	0.10	0.06	0.07	0.08	0.04	0.10	0.05	0.06	0.02	0.00	0.00	0.01
3321	0.14	0.00	0.11	0.13	0.12	0.06	0.14	0.11	0.31	0.16	0.24	0.26	0.03	0.00	0.00	0.01
(blank)	0.09	0.01	0.05	0.07	0.05	0.15	0.00	0.05	0.05	0.00	0.00	0.02	0.00	0.01	0.00	0.00
Column total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Grand total	1.77	0.15	0.60	2.52	1.03	0.22	0.43	1.68	0.49	0.17	0.29	0.96	0.15	0.16	0.10	0.41

Table 4b Farm allocation results Andalucia (%/total land use)

ENZ	11	11	11	11	11	11	11	11	11 Total	12	12	12	12	12	12	12	12
CTOP-CL	5	5	5	5 Total	9	9	9	9 Total		1	1	1	1 Total	2	2	2	2 Total
AGRI-Mask	0	1	2		0	1	2			0	1	2		0	1	2	
Farm types:																	
1101	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1102	0.17	15.72	18.93	15.15	0.01	0.35	0.19	0.19	4.74	5.02	5.20	5.15	5.04	4.17	5.18	4.02	4.18
1104	0.00	0.00	0.00	0.00	0.05	0.02	0.13	0.07	1.02	1.98	2.16	2.36	2.03	1.23	0.20	0.41	1.09
1114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.00	0.00	0.00	0.00	1.87	1.25	0.27	1.00	0.62	0.31	0.03	0.69	0.35	0.29	0.43	0.99	0.39
1119	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1201	0.00	0.00	0.00	0.00	0.65	0.41	0.31	0.43	0.51	0.45	0.76	0.79	0.50	1.21	0.39	0.39	1.07
1202	0.00	0.00	0.00	0.00	0.02	0.03	0.06	0.04	0.05	0.26	0.39	0.45	0.29	0.21	0.20	0.20	0.21
1203	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1204	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1214	0.00	0.00	0.00	0.00	0.03	0.81	0.03	0.28	0.30	0.08	0.11	0.41	0.13	0.12	0.13	0.35	0.15
1218	0.00	0.00	0.00	0.00	3.58	1.07	1.94	2.09	0.32	0.01	0.03	0.02	0.01	0.06	0.10	0.09	0.06
1219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00
1221	0.00	0.03	0.64	0.11	4.45	5.48	11.67	7.80	10.60	18.42	13.41	15.21	17.85	17.95	14.88	14.83	17.44

1301	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1304	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.01
1307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1313	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1314	0.00	0.00	0.00	0.00	0.09	0.15	0.13	0.13	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1320	0.00	0.00	0.00	0.00	0.33	1.08	0.63	0.69	0.21	0.11	0.00	0.03	0.10	0.01	0.00	0.00	0.01
1321	0.03	2.62	3.11	2.51	0.76	1.98	1.08	1.28	1.08	0.17	0.55	0.21	0.19	0.28	0.11	0.19	0.26
2101	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02	0.02	0.02	0.06	0.05	0.03	0.02	0.03	0.04	0.03
2102	11.91	37.64	42.37	36.61	0.47	2.20	1.22	1.33	7.44	13.90	13.44	8.73	13.22	8.97	10.95	9.64	9.11
2104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.24	0.16	0.07	0.30	0.78	0.69	0.36
2105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2109	0.00	0.00	0.00	0.00	1.35	1.66	1.59	1.55	1.59	0.01	0.09	0.01	0.01	0.00	0.11	0.01	0.01
2114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.25	0.54	0.59	0.30	0.85	0.45	0.35	0.77
2118	0.00	0.00	0.00	0.00	26.32	10.06	12.47	15.34	5.35	2.01	1.07	2.80	2.08	1.97	1.30	2.24	1.99
2119	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2121	14.11	3.83	1.69	4.21	1.04	2.73	0.94	1.54	3.44	2.85	4.02	2.93	2.90	2.87	3.89	3.65	3.01
2201	0.00	0.00	0.00	0.00	0.01	0.07	0.07	0.05	0.13	0.01	0.00	0.01	0.01	0.02	0.00	0.01	0.02
2202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2203	0.00	0.00	0.00	0.00	0.01	0.21	0.09	0.10	0.12	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.01

2204	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.04	0.05	0.20	0.02	0.03	0.17	0.11	0.00	0.02	0.09
2205	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2214	0.00	0.00	0.00	0.00	1.18	0.26	0.52	0.61	0.62	0.03	0.11	0.09	0.04	0.14	0.33	0.31	0.16
2216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2218	0.00	0.00	0.00	0.00	0.09	0.14	0.22	0.16	0.19	0.34	0.80	0.88	0.42	0.12	0.03	0.07	0.11
2219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.40	1.04	1.13	0.52	0.22	0.12	0.14	0.21
2220	0.00	0.00	0.00	0.00	1.38	0.92	0.20	0.74	0.06	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2221	73.77	40.13	32.96	41.34	21.15	32.90	15.06	22.33	20.60	12.61	19.13	16.02	13.26	15.43	17.45	17.86	15.81
2303	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
2304	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.03	0.00	0.00	0.03	0.02	0.00	0.00	0.01
2305	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2307	0.00	0.00	0.00	0.00	0.37	0.05	0.04	0.13	0.06	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00
2313	0.00	0.00	0.00	0.00	0.06	0.09	0.08	0.08	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2314	0.00	0.00	0.00	0.00	2.44	0.17	0.53	0.92	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2319	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2320	0.00	0.00	0.00	0.00	0.18	1.19	0.91	0.81	0.46	0.33	0.12	0.17	0.31	0.07	0.06	0.07	0.07
2321	0.00	0.00	0.00	0.00	0.07	0.53	0.50	0.39	0.24	0.17	0.24	0.18	0.18	0.10	0.06	0.07	0.09
3101	0.00	0.00	0.00	0.00	3.70	5.42	7.68	5.92	3.90	0.03	0.21	0.04	0.04	0.02	0.34	0.06	0.03
3102	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.04	0.97	0.33	0.14	0.47	0.34	1.14	0.40	1.05	1.11
3104	0.00	0.00	0.00	0.00	0.25	0.46	1.38	0.79	3.06	2.72	4.25	4.25	2.96	1.93	3.10	3.01	2.11
3105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3109	0.00	0.00	0.00	0.00	0.46	0.66	1.05	0.77	0.73	0.10	0.03	0.02	0.09	0.00	0.04	0.01	0.01
3114	0.00	0.00	0.00	0.00	4.23	1.23	1.40	2.09	2.14	0.48	0.59	0.92	0.54	0.61	0.53	0.91	0.65
3118	0.00	0.00	0.00	0.00	0.09	0.07	0.10	0.09	0.37	0.54	2.67	1.78	0.77	3.12	8.66	7.70	3.89
3119	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.04	0.10	0.09	0.32	0.22	0.11	0.38	1.05	0.93	0.47
3121	0.00	0.01	0.10	0.02	1.77	0.90	2.63	1.85	2.11	5.06	3.89	2.98	4.75	3.22	4.35	3.31	3.26
3201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3204	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3205	0.00	0.00	0.00	0.00	2.31	0.10	0.05	0.66	0.15	0.02	0.00	0.01	0.02	0.00	0.00	0.00	0.00
3208	0.00	0.00	0.00	0.00	0.08	0.02	0.09	0.06	0.03	0.06	0.13	0.14	0.08	0.02	0.00	0.01	0.02
3209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3214	0.00	0.00	0.00	0.00	0.46	0.69	0.93	0.73	0.47	0.14	0.39	0.41	0.19	0.03	0.04	0.02	0.03
3216	0.00	0.00	0.00	0.00	3.84	5.33	0.04	2.72	0.61	0.26	0.00	0.31	0.26	0.02	0.00	0.12	0.03
3218	0.00	0.00	0.00	0.00	3.75	4.87	6.93	5.44	3.84	0.32	0.91	0.81	0.40	0.34	0.95	0.65	0.40
3219	0.00	0.00	0.00	0.00	1.13	1.18	1.67	1.37	1.06	0.14	0.36	0.09	0.14	0.11	0.07	0.03	0.10
3220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.02	0.03	0.02	0.01	0.00	0.01	0.01
3221	0.00	0.03	0.21	0.05	9.13	11.36	23.32	15.79	18.03	29.10	21.97	27.95	28.73	31.90	22.99	25.15	30.74
3303	0.00	0.00	0.00	0.00	0.04	0.64	0.49	0.42	0.24	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
3305	0.00	0.00	0.00	0.00	0.06	0.09	0.08	0.08	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3307	0.00	0.00	0.00	0.00	0.59	0.07	0.01	0.18	0.06	0.02	0.00	0.01	0.02	0.00	0.00	0.00	0.00
3308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3315	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3316	0.00	0.00	0.00	0.00	0.06	0.10	0.09	0.08	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3317	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3318	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3319	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3320	0.00	0.00	0.00	0.00	0.02	0.00	0.12	0.06	0.07	0.37	0.50	0.38	0.37	0.27	0.25	0.34	0.28
3321	0.00	0.00	0.00	0.00	0.01	0.73	0.70	0.53	0.15	0.08	0.00	0.01	0.07	0.07	0.00	0.02	0.06
(blank)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.01	0.03	0.00	0.00	0.03
Column total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Grand total	0.00	0.03	0.00	0.03	0.04	0.05	0.06	0.15	5.76	4.72	0.18	0.72	5.62	3.17	0.09	0.53	3.79

Table 4c Farm allocation results Andalucia (%/total land use)

ENZ	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12 Total
CTOP-CL	3	4	4	3 Total	4	4	4	4 Total	5	5	5	5 Total	9	9	9	9 Total	
AGRI-Mask	0	1	2		0	1	2		0	1	2		0	1	2		
Farm types:																	
1101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1102	5.27	4.08	4.65	5.06	4.67	5.23	4.97	4.80	0.00	0.00	20.10	0.43	2.59	9.19	3.60	3.25	4.74
1104	1.72	0.13	0.62	1.38	0.11	0.06	0.01	0.07	0.00	0.00	0.00	0.00	1.13	0.00	0.07	0.74	1.59
1114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.80	0.06	1.09	0.82	0.24	0.00	0.40	0.27	0.00	0.00	0.00	0.00	0.02	0.00	1.14	0.38	0.43
1119	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1201	0.12	0.02	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.29	0.00	0.00	1.45	0.64
1202	0.57	0.42	0.41	0.53	0.09	0.07	0.04	0.07	0.00	0.00	0.00	0.00	5.28	0.00	0.61	3.53	0.30
1203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1204	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1214	0.20	0.95	0.35	0.28	0.00	0.00	0.25	0.08	0.00	0.00	0.00	0.00	0.25	0.00	0.54	0.33	0.16
1218	0.01	0.03	0.10	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.13	0.03
1219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
1221	16.46	16.71	15.00	16.15	8.33	12.14	15.69	10.90	0.00	0.00	2.02	0.04	13.87	6.57	14.55	13.71	17.38

1301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1304	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
1307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1320	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.05
1321	0.46	0.14	0.56	0.46	0.04	0.57	0.37	0.18	0.00	0.00	3.35	0.07	0.17	0.38	0.09	0.15	0.25
2101	0.03	0.05	0.05	0.04	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.12	0.00	0.01	0.08	0.03
2102	11.00	11.59	13.62	11.61	12.97	16.95	14.10	13.61	11.62	11.62	44.37	12.32	7.61	23.11	7.59	8.39	11.58
2104	0.10	0.27	0.31	0.16	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.09	0.18
2105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2109	0.03	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2114	0.02	0.05	0.06	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.00	0.54	0.42
2118	2.61	0.37	2.95	2.55	1.46	0.23	0.45	1.05	0.00	0.00	0.00	0.00	0.34	0.00	2.35	0.96	2.10
2119	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2121	3.60	3.37	3.18	3.49	9.90	5.43	4.35	7.85	14.22	14.22	0.25	13.93	5.86	12.91	4.76	5.87	3.08
2201	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01
2202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2203	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.01	0.04	0.01

2204	0.06	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.07	0.03	0.12
2205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2214	0.06	0.12	0.16	0.08	0.00	0.02	0.03	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.02	0.09
2216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2218	0.11	0.06	0.03	0.09	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.71	0.00	0.01	0.45	0.27
2219	0.08	0.09	0.03	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00	0.64	0.35
2220	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2221	19.03	22.01	19.75	19.37	40.13	34.68	26.47	35.48	74.16	74.15	29.90	73.21	23.63	41.81	29.57	26.44	15.27
2303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2304	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02
2305	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2307	0.01	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00
2318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2319	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2320	0.05	0.07	0.07	0.06	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.07	0.00	0.01	0.05	0.19
2321	0.18	0.18	0.12	0.17	0.03	0.05	0.14	0.06	0.00	0.00	0.00	0.00	1.66	0.05	0.18	1.11	0.15
3101	0.08	0.15	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.20	0.04
3102	2.42	0.43	1.92	2.19	0.68	0.46	0.56	0.63	0.00	0.00	0.00	0.00	0.44	0.00	0.63	0.48	0.86
3104	1.86	1.22	1.73	1.80	2.23	0.22	0.50	1.54	0.00	0.00	0.00	0.00	3.17	0.00	0.00	2.00	2.49
3105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3109	0.02	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
3114	0.54	0.15	0.53	0.52	0.00	0.00	0.23	0.07	0.00	0.00	0.00	0.00	0.37	0.00	0.62	0.43	0.57
3118	1.16	3.00	3.47	1.78	0.00	0.00	0.45	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96
3119	0.14	0.36	0.42	0.22	0.00	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
3121	3.07	3.43	2.97	3.07	1.12	1.48	1.58	1.29	0.00	0.00	0.00	0.00	8.33	5.35	3.37	6.60	3.98
3201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3204	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
3208	0.04	0.01	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.07	0.05
3209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3214	0.04	0.04	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.20	0.11
3216	0.58	0.00	0.39	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
3218	0.27	0.47	0.32	0.30	0.05	0.24	0.21	0.11	0.00	0.00	0.00	0.00	0.69	0.00	0.25	0.52	0.38
3219	0.17	0.03	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.17	0.07	0.12
3220	0.02	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.17	0.02
3221	26.63	29.41	24.66	26.36	17.82	22.16	28.89	21.58	0.00	0.00	0.00	0.00	17.26	0.63	29.51	20.31	28.97
3303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.04	0.00
3305	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
3308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3315	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3317	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3319	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3320	0.23	0.40	0.37	0.27	0.09	0.00	0.12	0.09	0.00	0.00	0.00	0.00	0.46	0.00	0.08	0.32	0.32
3321	0.07	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.05	0.06
(blank)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.17	0.01
Column total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Grand total	1.10	0.09	0.34	1.53	0.07	0.01	0.04	0.12	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.04	11.11

Table 4d Farm allocation results Andalucia (%/total land use)

ENZ	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CTOP-CL	1	1	1	1 Total	2	2	2	2 Total	3	4	4	3 Total	4	4	4	4 Total
AGRI-Mask	0	1	2		0	1	2		0	1	2		0	1	2	
Farm types:																
1101	0.84	0.01	0.17	0.81	0.20	0.03	0.06	0.19	0.63	0.01	0.02	0.48	0.00	0.00	0.00	0.00
1102	0.58	3.17	1.52	0.64	0.84	2.06	0.92	0.87	0.44	0.68	0.56	0.47	0.00	14.78	0.00	3.01
1104	1.05	1.45	1.07	1.05	1.22	0.98	1.09	1.20	0.44	1.05	0.55	0.48	0.00	26.05	1.80	6.52
1114	1.18	0.21	1.11	1.17	1.34	0.13	0.47	1.25	0.07	0.00	0.04	0.06	0.00	0.00	0.00	0.00
1118	0.07	0.10	0.10	0.07	0.16	0.37	0.21	0.16	0.04	0.30	0.11	0.07	0.40	1.79	0.07	0.46
1119	0.20	0.11	0.53	0.21	0.17	0.01	0.34	0.18	0.00	0.00	0.15	0.03	0.00	0.00	0.00	0.00
1121	0.07	0.03	0.04	0.07	0.23	0.01	0.04	0.21	0.05	0.00	0.00	0.04	0.00	0.00	0.00	0.00
1201	1.75	1.00	1.35	1.73	2.86	0.77	1.99	2.75	3.76	0.43	0.89	3.04	0.00	0.03	9.06	6.13
1202	1.32	2.12	1.55	1.34	0.54	0.81	0.75	0.56	0.12	0.03	0.75	0.25	0.17	0.01	0.03	0.04
1203	0.03	0.01	0.01	0.03	0.02	0.01	0.06	0.02	1.42	0.16	0.17	1.12	0.00	0.00	0.08	0.05
1204	0.42	0.00	0.05	0.40	0.18	0.04	0.04	0.17	0.07	0.00	0.01	0.06	0.00	0.00	0.52	0.35
1214	0.66	0.67	1.89	0.71	1.12	0.26	1.20	1.12	1.31	3.90	3.55	1.87	0.00	1.10	1.61	1.31
1218	0.07	0.25	0.14	0.07	0.08	0.22	0.19	0.09	0.03	0.11	0.15	0.06	0.38	0.01	0.09	0.11
1219	0.33	0.08	0.53	0.34	0.42	0.00	0.36	0.41	0.02	0.00	0.11	0.04	0.00	0.00	0.00	0.00
1221	9.39	10.82	10.12	9.43	6.72	7.72	6.72	6.73	3.42	3.26	4.67	3.67	3.67	3.24	0.66	1.55

1301	0.02	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.41	0.00	0.00	0.31	0.00	0.00	0.00	0.00
1303	0.18	0.00	0.02	0.17	0.10	0.01	0.02	0.09	2.22	0.00	0.01	1.68	0.00	0.00	0.00	0.00
1304	0.03	0.00	0.00	0.03	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1307	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.07	0.05	0.00	0.00	0.05	0.03
1313	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1314	0.00	0.09	0.05	0.01	0.01	0.04	0.03	0.01	0.41	1.38	1.09	0.59	0.00	0.00	0.59	0.40
1316	0.03	0.00	0.04	0.03	0.13	0.13	0.23	0.14	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00
1320	0.20	0.66	0.36	0.21	0.28	0.56	1.19	0.36	4.71	4.68	5.01	4.77	0.00	0.00	2.65	1.79
1321	1.98	2.83	1.30	1.96	2.08	1.60	2.28	2.09	6.16	5.49	5.64	6.03	0.00	0.12	2.67	1.82
2101	1.18	0.27	0.34	1.14	1.05	0.25	0.43	0.98	0.15	0.03	0.11	0.13	0.00	0.01	3.04	2.05
2102	1.55	2.41	2.74	1.61	1.62	2.96	1.87	1.66	1.23	2.34	1.29	1.29	0.66	0.53	1.78	1.39
2104	0.87	0.61	0.56	0.85	1.01	0.74	1.17	1.02	0.20	0.34	0.35	0.24	3.02	0.09	0.54	0.75
2105	0.04	0.00	0.04	0.04	0.14	0.00	0.02	0.12	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00
2109	0.44	1.05	0.76	0.46	0.82	1.38	0.98	0.84	1.49	0.76	0.54	1.27	0.00	0.00	0.00	0.00
2114	1.05	0.43	1.12	1.05	2.01	0.23	1.42	1.93	0.11	0.05	0.15	0.12	0.60	0.02	0.11	0.15
2118	0.91	2.69	2.40	0.98	0.67	4.47	1.58	0.80	0.39	1.09	0.84	0.51	0.91	1.54	0.16	0.53
2119	1.06	1.53	1.53	1.08	1.98	2.91	1.94	1.99	0.20	0.31	0.02	0.17	0.00	0.00	0.00	0.00
2120	0.33	0.00	0.79	0.35	0.07	0.00	0.03	0.07	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2121	0.90	1.23	1.43	0.93	0.41	1.94	0.94	0.48	0.24	1.22	0.89	0.41	0.51	1.74	0.09	0.48
2201	0.33	0.15	0.21	0.32	0.21	0.26	0.26	0.21	0.59	0.61	0.82	0.64	0.00	0.00	0.58	0.39
2202	0.34	0.45	0.42	0.34	0.28	0.24	0.16	0.27	0.05	0.01	0.00	0.04	0.00	0.00	0.00	0.00
2203	0.37	0.19	0.15	0.36	0.37	0.24	0.32	0.36	3.11	0.59	0.64	2.50	0.07	0.01	1.28	0.87

2204	0.94	0.46	0.49	0.92	0.96	0.18	0.40	0.90	0.33	0.02	0.15	0.28	0.00	0.02	5.58	3.77
2205	0.02	0.07	0.06	0.02	0.03	0.03	0.05	0.03	0.31	1.05	0.85	0.45	0.00	0.00	0.45	0.30
2214	1.37	0.67	1.93	1.39	2.16	1.26	1.57	2.09	0.35	0.25	0.49	0.38	1.26	0.09	0.23	0.32
2216	0.08	0.00	0.04	0.07	0.08	0.00	0.02	0.07	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2218	0.38	0.46	0.56	0.38	0.23	0.29	0.20	0.23	0.04	0.00	0.01	0.04	0.00	0.00	0.00	0.00
2219	0.63	0.51	1.09	0.65	1.17	0.45	1.00	1.14	0.21	0.07	0.22	0.21	0.30	0.01	0.05	0.08
2220	0.05	0.73	0.18	0.06	0.11	0.18	0.05	0.10	0.18	0.15	0.20	0.18	0.00	0.00	0.15	0.10
2221	5.24	25.64	12.36	5.64	5.79	23.00	10.57	6.45	5.74	10.49	9.17	6.63	0.00	29.44	2.36	7.59
2303	0.76	0.06	0.12	0.73	0.79	0.18	0.45	0.75	5.91	0.25	0.32	4.54	0.04	0.01	3.30	2.24
2304	0.03	0.02	0.01	0.03	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2305	0.00	0.03	0.01	0.00	0.00	0.01	0.01	0.00	0.13	0.44	0.35	0.19	0.00	0.00	0.19	0.13
2307	0.01	0.03	0.02	0.01	0.01	0.00	0.00	0.01	0.04	0.06	0.11	0.05	0.00	0.00	0.04	0.02
2313	0.00	0.05	0.02	0.00	0.00	0.10	0.11	0.02	0.22	0.74	0.58	0.32	0.00	0.00	0.32	0.21
2314	0.00	0.49	0.06	0.01	0.00	0.45	0.07	0.02	0.32	1.15	1.16	0.52	0.00	0.00	0.44	0.30
2318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2319	0.05	0.00	0.01	0.05	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2320	0.42	0.63	0.71	0.43	0.34	0.63	0.68	0.38	6.88	6.82	7.16	6.94	0.11	0.96	3.63	2.66
2321	0.30	0.47	0.46	0.31	0.51	0.56	0.72	0.53	3.03	3.10	3.62	3.15	0.00	2.08	1.92	1.72
3101	8.56	1.77	3.32	8.31	6.57	2.27	2.53	6.16	3.24	0.11	0.35	2.53	0.00	0.10	4.78	3.25
3102	0.68	0.03	0.10	0.65	1.36	0.27	0.60	1.28	0.40	0.07	0.32	0.37	0.00	0.11	8.74	5.93
3104	3.81	3.09	4.12	3.82	4.09	2.78	5.35	4.18	7.82	7.36	9.78	8.21	10.88	0.33	8.20	6.92
3105	0.04	0.00	0.02	0.04	0.03	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3109	2.02	0.52	2.74	2.05	3.31	0.74	2.35	3.19	0.16	0.01	0.02	0.13	0.00	0.00	0.00	0.00
3114	4.39	5.24	7.56	4.53	5.56	5.80	4.22	5.45	1.15	1.52	0.94	1.12	1.34	1.01	1.30	1.25
3118	6.44	6.10	6.63	6.45	9.20	7.53	13.70	9.56	3.45	3.87	4.16	3.62	33.63	1.03	6.02	8.34
3119	0.65	0.83	0.82	0.66	0.69	1.04	1.56	0.77	0.17	0.41	0.45	0.24	4.07	0.12	0.73	1.01
3121	6.57	2.84	3.78	6.43	2.38	3.29	3.69	2.50	0.68	1.87	1.89	0.97	6.24	0.80	1.12	1.67
3201	1.12	0.04	0.17	1.08	0.91	0.19	0.40	0.85	0.70	0.03	0.10	0.55	0.00	0.01	2.11	1.42
3202	0.14	0.07	0.07	0.14	0.39	0.25	0.38	0.38	0.00	0.01	0.03	0.01	0.00	0.00	0.00	0.00
3203	0.64	0.05	0.10	0.62	0.42	0.03	0.14	0.39	0.37	0.00	0.04	0.29	0.00	0.00	1.23	0.83
3204	6.48	0.05	0.29	6.18	2.25	0.04	0.41	2.06	1.34	0.00	0.03	1.01	0.00	0.00	0.00	0.00
3205	0.11	0.59	0.43	0.13	0.28	0.14	0.21	0.27	1.67	5.55	4.73	2.45	0.00	0.00	2.31	1.56
3208	0.04	0.05	0.04	0.04	0.02	0.07	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3209	0.01	0.01	0.04	0.01	0.01	0.00	0.02	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
3214	0.79	0.47	0.86	0.79	1.90	0.36	0.79	1.78	1.67	4.97	3.91	2.26	0.00	0.00	2.12	1.43
3216	0.00	0.19	0.03	0.00	0.00	0.00	0.00	0.00	0.14	0.28	1.15	0.35	0.00	0.00	0.00	0.00
3218	1.38	2.08	2.84	1.45	1.84	2.72	2.48	1.91	0.66	0.72	0.59	0.65	2.05	0.08	0.37	0.51
3219	1.79	0.64	1.55	1.77	2.37	0.71	1.50	2.27	1.60	0.78	0.64	1.37	0.00	0.00	0.00	0.00
3220	0.54	0.06	0.12	0.52	0.52	0.02	0.05	0.47	0.04	0.01	0.03	0.04	0.00	0.04	0.00	0.01
3221	7.31	8.88	9.20	7.40	8.78	9.93	10.33	8.93	6.67	10.04	7.85	7.04	29.51	12.69	7.75	11.39
3303	3.42	0.33	0.77	3.30	2.17	0.46	0.74	2.02	4.51	3.57	3.66	4.30	0.00	0.01	2.80	1.90
3305	0.08	0.03	0.18	0.08	0.07	0.45	0.55	0.12	0.13	0.42	0.33	0.18	0.00	0.00	0.18	0.12
3307	0.03	0.09	0.08	0.04	0.03	0.30	0.37	0.06	0.12	0.30	0.32	0.17	0.00	0.00	0.11	0.08
3308	0.01	0.05	0.01	0.01	0.04	0.02	0.04	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3315	0.01	0.00	0.03	0.01	0.02	0.51	0.62	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3316	0.02	0.00	0.01	0.02	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3317	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.00	0.00	0.02	0.01
3319	0.07	0.00	0.07	0.07	0.26	0.00	0.03	0.23	0.05	0.00	0.00	0.04	0.00	0.00	0.00	0.00
3320	0.66	0.59	0.45	0.65	0.32	0.16	0.18	0.30	0.05	0.12	0.24	0.09	0.17	0.01	0.03	0.04
3321	0.84	0.30	0.43	0.82	0.90	0.61	0.49	0.86	4.41	4.41	4.67	4.47	0.00	0.00	2.47	1.67
(blank)	1.27	0.06	0.56	1.23	1.75	0.53	0.96	1.67	1.37	0.00	0.12	1.06	0.00	0.01	1.51	1.02
Column total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Grand total	63.97	0.28	2.93	67.18	12.27	0.20	1.18	13.65	1.17	0.06	0.32	1.55	0.00	0.00	0.01	0.01

Table 4e Farm allocation results Andalucia (%/total land use)

ENZ	13	13	13	13	13 Total	Grand Total
CTOP-CL	9	9	9	9 Total		
AGRI-Mask	0	1	2			
Farm types:						
1101	0.80	0.01	0.00	0.74	0.70	0.58
1102	0.13	0.00	0.46	0.15	0.67	1.35
1104	0.70	0.36	0.52	0.68	1.06	1.12
1114	0.81	0.00	0.79	0.80	1.16	0.97
1118	0.03	0.00	0.07	0.03	0.09	0.15
1119	0.49	0.00	0.54	0.49	0.21	0.17
1121	0.01	0.00	0.09	0.02	0.09	0.08
1201	2.67	0.78	1.81	2.58	1.93	1.70
1202	0.50	0.02	0.72	0.51	1.18	1.02
1203	0.15	0.00	0.20	0.15	0.05	0.04
1204	0.54	0.00	0.01	0.49	0.36	0.30
1214	2.11	0.02	2.18	2.08	0.82	0.71
1218	0.12	2.40	0.19	0.16	0.07	0.08
1219	0.56	0.00	1.77	0.63	0.35	0.29
1221	5.67	3.20	13.82	6.21	8.85	9.90

1301	0.03	0.02	0.00	0.03	0.02	0.02
1303	0.57	0.00	0.04	0.52	0.19	0.16
1304	0.01	0.00	0.00	0.01	0.02	0.02
1307	0.01	0.00	0.00	0.01	0.00	0.00
1313	0.00	0.00	0.00	0.00	0.00	0.00
1314	0.02	0.00	0.00	0.02	0.02	0.02
1316	0.01	0.00	0.02	0.01	0.05	0.04
1320	0.72	0.03	3.21	0.89	0.32	0.29
1321	4.36	0.29	2.41	4.17	2.07	1.81
2101	0.43	0.02	0.42	0.42	1.09	0.91
2102	0.50	0.00	1.41	0.56	1.60	3.05
2104	0.77	0.00	0.33	0.72	0.87	0.74
2105	0.01	0.00	0.03	0.01	0.05	0.04
2109	0.64	2.71	0.61	0.67	0.54	0.54
2114	0.80	0.00	1.42	0.83	1.17	1.02
2118	0.97	13.51	0.60	1.13	0.95	1.33
2119	0.99	0.00	1.57	1.01	1.21	1.05
2120	0.34	0.00	1.91	0.45	0.30	0.25
2121	0.41	0.15	0.51	0.41	0.84	1.24
2201	0.32	0.28	0.26	0.32	0.31	0.27
2202	0.05	0.00	0.33	0.07	0.32	0.27
2203	0.98	0.03	0.15	0.91	0.41	0.35

2204	1.15	0.00	0.06	1.05	0.91	0.77
2205	0.05	0.00	0.02	0.05	0.03	0.03
2214	1.56	1.47	2.84	1.65	1.49	1.28
2216	0.04	0.00	0.01	0.04	0.07	0.06
2218	0.24	0.11	0.51	0.26	0.35	0.33
2219	1.03	0.00	1.95	1.08	0.73	0.65
2220	0.06	0.01	0.03	0.06	0.07	0.06
2221	4.53	52.80	13.87	5.91	5.79	7.70
2303	1.68	0.03	0.10	1.54	0.81	0.68
2304	0.20	0.01	0.00	0.18	0.03	0.02
2305	0.01	0.00	0.00	0.01	0.01	0.01
2307	0.01	0.00	0.00	0.01	0.01	0.01
2313	0.01	0.00	0.00	0.01	0.01	0.01
2314	0.02	1.07	0.01	0.03	0.02	0.03
2318	0.00	0.00	0.00	0.00	0.00	0.00
2319	0.06	0.00	0.00	0.06	0.04	0.03
2320	0.91	0.09	2.19	0.99	0.55	0.50
2321	0.44	0.06	1.06	0.48	0.40	0.36
3101	8.25	3.83	1.66	7.72	7.84	6.75
3102	0.26	0.00	0.05	0.24	0.75	0.77
3104	3.42	1.82	2.57	3.34	3.95	3.74
3105	0.00	0.00	0.00	0.00	0.04	0.03

3109	1.06	0.32	8.10	1.55	2.19	1.87
3114	3.21	3.85	6.84	3.48	4.61	4.02
3118	7.30	0.22	3.98	6.96	6.91	5.98
3119	0.83	0.17	0.81	0.82	0.67	0.59
3121	6.02	1.54	1.00	5.60	5.67	5.28
3201	1.57	0.00	0.00	1.44	1.03	0.87
3202	0.37	0.00	0.00	0.34	0.18	0.16
3203	0.37	0.13	0.03	0.34	0.57	0.48
3204	5.09	0.00	0.05	4.66	5.40	4.49
3205	0.32	0.00	0.27	0.31	0.20	0.17
3208	0.04	0.18	0.01	0.04	0.04	0.04
3209	0.05	0.00	0.06	0.05	0.01	0.01
3214	0.51	0.32	1.23	0.56	0.98	0.85
3216	0.00	0.00	0.00	0.00	0.01	0.07
3218	1.06	4.13	1.63	1.15	1.51	1.52
3219	2.93	0.56	3.67	2.94	1.86	1.62
3220	1.55	0.00	0.05	1.42	0.51	0.43
3221	6.14	3.28	4.11	5.96	7.63	10.60
3303	6.29	0.03	0.99	5.82	3.13	2.61
3305	0.04	0.00	0.00	0.04	0.09	0.08
3307	0.05	0.05	0.19	0.06	0.04	0.04
3308	0.00	0.00	0.00	0.00	0.01	0.01

3313	0.00	0.00	0.00	0.00	0.00	0.00
3315	0.01	0.00	0.00	0.01	0.02	0.02
3316	0.01	0.00	0.00	0.01	0.02	0.02
3317	0.00	0.00	0.00	0.00	0.00	0.00
3318	0.00	0.00	0.01	0.00	0.00	0.00
3319	0.01	0.00	0.06	0.02	0.09	0.08
3320	0.86	0.08	0.04	0.79	0.58	0.52
3321	0.90	0.00	1.10	0.90	0.90	0.76
(blank)	1.21	0.00	0.43	1.14	1.30	1.09
Column total	100.00	100.00	100.00	100.00	100.00	100.00
Grand total	0.68	0.01	0.05	0.74	83.12	100.00